



3rd International Conference on Multidisciplinary and Current Educational Research

01st - 02nd July 2021

Ayuttaya, Thailand

ICMCER-2021



Organized By

Mahachulalongkornrajavidyalaya University (MCU)

In Association with

Institute For Engineering Research and Publication (IFERP)



ICMCER – 2021

**3nd International Conference on Multidisciplinary and
Current Educational Research**

**Ayuttaya, Thailand
01st – 02nd July, 2021**

**Organized by:
Mahachulalongkornrajavidyalaya University (MCU)
In Association with:
Institute For Engineering Research and Publication**



RudraBhanuSatpathy.,

Chief Executive Officer,
Institute For Engineering Research and Publication.

On behalf of *Institute For Engineering Research and Publications (IFERP)* in association with *Mahachulalongkornrajavidyalaya University (MCU)*, Ayuttaya, Thailand, I am delighted to welcome all the delegates and participants around the globe for the “*3rd International Conference on Multidisciplinary and Current Educational Research – (3rd ICMCER – 2021)*” Which will take place from *01st–02nd July 2021*

Transforming the importance of Engineering, the theme of this conference is “*3rd International Conference on Multidisciplinary and Current Educational Research – (3rd ICMCER – 2021)*”

It will be a great pleasure to join virtually with Engineers, Research Scholars, academicians and students all around the globe. You are invited to be stimulated and enriched by the latest in engineering research and development while delving into presentations surrounding transformative advances provided by a variety of disciplines.

I congratulate the reviewing committee, coordinator (**IFERP & MCU**) and all the people involved for their efforts in organizing the event and successfully conducting the International Conference virtually and wish all the delegates and participants a very pleasant stay at *Ayuttaya, Thailand*. I wish that the next conference will be held in person in the university campus.

Sincerely,



RudraBhanuSatpathy

Message from Dean



Associate Professor Dr. Phraratsutaporn

Faculty of Education, MCU

On behalf of ICMCER-2021 organizing team, I am honored and delighted to welcome you to The 3rd International Conference on Multidisciplinary and Current Educational Research (ICMCER-2021) to be held on 01st – 02nd July 2021 at Faculty of Education, Mahachulalongkornrajavidyalaya University with Institute For Engineering Research and Publication (IFERP), Chennai.

Any conference is intended for discussing lively and emerging issues of a particular educational domain and disseminating the awareness among other researchers and scholars. We have been witnessing the dramatic improvements in the field of Education and Multidisciplinary Technologies and applications. I hope ICMCER-2021 will become surely the most important International event and bring out latest trends in Multidisciplinary and Educational Innovation.

In order to provide an outstanding research level for the presentations at the conference, we have invited distinguished experts to participate in the program. We will have, plenary sessions by keynote speakers during 2 days of conference including the awards presentation during the closing session on the last day of the conference.

I hope ICMCER-2021 will make you to reflect yourself with state-of-the art and provide opportunity to discuss various educational issues and challenges including other sciences with multidisciplinary aspects.

With best regards,

Associate Professor Dr. Phraratsutaporn

Dean, Faculty of Education, MCU

Welcome message from Conference Coordinator



Dr.Lampong Klomkul

Faculty of Education, MCU

Dear Delegates and Colleagues,

It is a great pleasure and an honor to extend my warm invitation to all esteemed delegates to our upcoming the 3rd International Conference on Multidisciplinary and Current Educational Research (ICMCER-2021) to be held on 01st – 02nd July 2021 at Faculty of Education, Mahachulalongkornrajavidyalaya University with Institute For Engineering Research and Publication (IFERP), Chennai.

The theme of ICMCER-2021 ‘Conference on Multidisciplinary and Current Educational Research’ will underpin the need for participation in forums for collaborative Research and cooperation among individuals from a wide range of educational and technical backgrounds.

The ICMCER-2021 Conference will surely provide a wonderful debating platform for you to refresh your knowledge base and explore the innovations in education and multidisciplinary. The Conference will strive to offer plenty of networking opportunities, providing you with the opportunity to meet and interact with the educators and researchers.

We also look forward to your participation in oral presentations to share your educational research and multidisciplinary knowledge. I strongly believe that this International meet will provide a fantastic opportunity for global networking and fostering research collaborations within the worldwide innovation and education fraternity.

I hope you will join us for a symphony of outstanding Conference, and take time to enjoy the spectacular and unique beauty of Ayutthaya city and its surroundings.

With best wishes,

Dr.Lampong Klomkul , Conference Coordinator

Acting Director for Research, Information and Academic Services Division,
ASEAN Studies Centre, MCU

ICMCER -21

*3rd International Conference on
Multidisciplinary and Current
Educational Research*

Keynote Speakers



Prof. Dr. Phra Thepvatjarabundit

Rector, Mahachulalongkornrajavidyalaya University, Thailand



Prof Dr Munaz Ahmed Noor

Vice-Chancellor ,Bangabandhu Sheikh Mujibur Rahman Digital University (BDU), Dhaka, Bangladesh



Dr. Prabhat Ranjan

Vice Chancellor at D Y Patil International University, Akurdi, Pune, Pune, Maharashtra, India



Dr. Vichit Rangpan

Associate Professor, Yala Rajabhat University, Thailand



Prof. Luca Brusati

Professor, Management and Scientific Coordinator, LAREM, Udine University Gorizia, Italy

ICMCER – 2021

3rd International Conference on Multidisciplinary and Current Educational Research

Ayuttaya, Thailand
01st – 02nd July 2021

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The Influence of Service Quality on Consumer Purchasing Decision of Electric Motorcycles in Phra Nakhon Si Ayutthaya

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Abstract— *The trend of the electric vehicle market is growing. The researcher studied the influence of service quality on consumers' decision to buy electric motorcycles in Phra Nakhon Si Ayutthaya Province. The objectives of this study were 1) the decision level of purchasing electric motorcycles. 2) Influence of service quality affecting consumers' decision to buy electric motorcycles in Phra Nakhon Si Ayutthaya Province This research was a quantitative study. The sample group was 400 consumers who were interested in purchasing electric motorcycles in Phra Nakhon Si Ayutthaya Province. The research tool was a questionnaire. Purposive sampling was used. The statistics used to analyze the data comprised frequency, percentage, mean, standard deviation, inferential statistics using Multiple Regression Analysis (MRA). The results showed that the overall level of consumer satisfaction in purchasing electric motorcycles in Phra Nakhon Si Ayutthaya Province was at a very high level ($\bar{x} = 4.58$, S.D.=0.26). The results of the study on the influence of service quality on consumers' purchasing decisions in Phra Nakhon Si Ayutthaya province were classified into two aspects: tangibility and responsiveness. We could explain the decision to buy an electric motorcycle by 34.2% of consumers in Ayutthaya province and write the equation as follows. (Quality of Service) = 3.450 + 0.318 (tangibility) - 0.047 (responsiveness). We could use the results as a guideline for improving and optimizing the marketing planning of electric motorcycles to support product growth*

Keywords— *Quality of Service, Decision Making*

I. INTRODUCTION

The global electric vehicle market is growing steadily, it is estimated that by 2025 there will be more than 400 new electric vehicle models on the market, and there is still a growing trend. According to BCG's "Global Automotive Powertrain Forecast", the growth rate of electric vehicles in the global market will increase much faster than expected. The market share accounted for one-third of the global market in 2025 and an increase of over 51% in 2030. Of those, we estimate it to be about 25% each of battery electric vehicles and plug-in hybrid vehicles (PHV). According to Global Market Insights, Inc., the market size of electric scooters and electric motorcycles forecast to reach \$22 billion by 2024 [1][2]. Although the world faces the epidemic situation of the COVID-19 virus that affects the economic downturn and the recovery of economic activities, the electric vehicle market continues to grow.

Based on the above information, it is appropriate to study the influence of service quality that affects consumers' decision to buy electric motorcycles in Phra Nakhon Si Ayutthaya Province as a useful guideline for electric motorcycles business operators. We then use the results as a guideline for improving and optimizing the marketing planning of electric motorcycles to support future market growth.

II. RESEARCH OBJECTIVES

- 1) To study the level of consumers' decision to buy electric motorcycles in Phra Nakhon Si Ayutthaya Province.
- 2) To study the influence of service quality affecting consumers' decision to buy electric motorcycles in Phra Nakhon Si Ayutthaya Province.

III. LITERATURE REVIEW

In this study, the researcher aimed to study the influence of service quality on consumers' decision to buy electric motorcycles in Ayutthaya Province: Service quality is the study of the influence of service quality on the decision to buy

an electric motorcycle in terms of service quality influence. The present study used the Ziethaml, Parasuraman & Berry (1988) concept of service quality as a tool to measure perceptions of service quality in the SERVQUAL five areas: tangibility, reliability, responsiveness, assurance, and empathy [3]. SERVQUA service quality is a model that reveals the strengths and weaknesses of the service quality of an establishment [4].



Figure 1. Concept model SERVQUAL

Source : www.google.com

From the above theoretical concepts, the researcher hypothesized to study the influence of service quality:

Research hypothesis

- H1: Tangibility positively affects consumers' decision to buy electric motorcycles.
- H2: Reliability positively affects consumers' decision to buy electric motorcycles.
- H3: Responsiveness positively affects consumers' decision to buy electric motorcycles.
- H4: Assurance positively affects consumers' decision to buy electric motorcycles.
- H5: Empathy positively affects consumers' decision to buy electric motorcycles.

The decision-making process could divide into three major steps: 1. Pre-decision making process - problem/need recognition, information search, and evaluation of choices. 2. Decision-making process - purchase/not purchase. 3. Post-decision making process - post-purchase evaluation, post-purchase evaluation, post-purchase consumer dissatisfaction, and post-purchase behavior reinforcement [5][6]



Figure 2. Concept model Decision-making process

Source : www.google.com

Conceptual framework

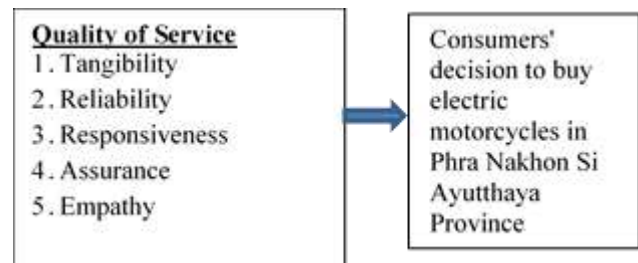


Figure 3. Influence of service quality affecting consumers' decision to buy electric motorcycles in Phra Nakhon Si Ayutthaya Province

IV. RESEARCH METHODS

The study of the influence of service quality on consumers' decision to buy electric motorcycles in Phra Nakhon Si Ayutthaya Province was a quantitative approach. The population used in the study was those who were interested in buying electric motorcycles. The researcher used Multi-Stage Random Sampling. The sample selection is divided into 3 steps: 1. Purposive sampling was done by collecting specific data samples from 16 districts in Phra Nakhon Si Ayutthaya Province. 2. Quota sampling. 3. Convenience sampling. In this study, the researcher chose a questionnaire as a data collection tool. The questionnaire has 4 parts: part 1 - general information of respondents, part 2 - service quality factors, part 3 - decision to buy an electric motorcycle, and part 4 - suggestion. We carried the determination of a sample of the unknown population out using the formula of W.G. Cochran and we set the tolerance limits at 0.05 [7]. The research collected data from a sample of 400 people. The questionnaire quality was examined by testing the content validity by calculating the Index of Item Objective Congruence (IOC) to ask experts to determine if the questions

were consistent. We found that all the IOC values were greater than 0.50. The questionnaire confidence test then conducted using 30 questionnaires, and we tested the collected data using statistical methods. Cronbach's alpha coefficient was 0.947, which was greater than 0.7 [8]. Therefore, it concluded that the questionnaire was valid and confident. The statistics used in the study comprised descriptive statistics, which were used in the descriptions comprising frequency, percentage, mean, standard deviation, and inferential statistics (Multiple Regression Analysis).

V. RESEARCH RESULTS

The demographic characteristics of the sample found that most of the sample were 234 male (58.5 percent), aged 21-30 years of 233 people (58.3 percent), bachelor's degree level of 293 (73.3 percent), occupation as employees of private companies of 168 people (15.5 percent), and average income 15,001–20,000 baht for 144 people (36.0 percent).

Table 1 Results of a study on the relationship of service quality affecting consumers' decision to purchase electric motorcycles in Ayutthaya Province

Variable	(1)	(2)	(3)	(4)	(5)	(6)
1. Tangibility	1	.419***	.245***	.297***	.293***	.426***
2. Reliability		1	1.000**	.616**	.960**	.171**
3. Responsiveness			1	.616**	.188*	.171**
4. Assurance				1	.622**	.240**
5. Empathy					1	.133**
6. Decision to buy an electric motorcycle						1

Table 1 shows the results of a study on the relationship of service quality affecting consumers' decision to buy electric motorcycles in Ayutthaya Province. Results included tangibility, reliability, responsiveness, assurance, empathy, and decision to buy an electric motorcycle. The resulting correlation coefficient was as follows.

Tangibility was significantly correlated with consumers' decision to buy electric motorcycles in Phra Nakhon Si Ayutthaya at 0.01 ($r = .43$).

Reliability was significantly correlated with consumers' decision to buy electric motorcycles in Phra Nakhon Si Ayutthaya at 0.01 ($r = .17$).

Responsiveness was significantly correlated with consumers' decision to purchase electric motorcycles in Phra Nakhon Si Ayutthaya at 0.01 ($r = .17$).

Assurance was significantly correlated with consumers' decision to buy electric motorcycles in Phra Nakhon Si Ayutthaya Province at 0.01 ($r = .24$).

Empathy was significantly correlated with consumers' purchasing decisions in Phra Nakhon Si Ayutthaya Province at 0.01 ($r = .13$). Consumers' decision to purchase electric motorcycles in Phra Nakhon Si Ayutthaya province was significantly correlated at 0.01 level.

Table 2 Results of the study of the influence of service quality on consumers' purchasing decisions of electric motorcycles in Phra Nakhon Si Ayutthaya Province

Quality of Service	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	(Beta)		
(Constant)	3.450	.092		37.345	.000
Tangibility	.318	.024	.632	13.264	.000***
Responsiveness	-.047	.022	-.104	-2.183	.030**
R = 0.585		R ² = 0.342	Adj. R ² = 0.339		

p < 0.05, *p < 0.01

Table 2 shows that the influence of service quality on consumers' purchasing decisions in Phra Nakhon Si Ayutthaya Province, namely tangibility and responsiveness, affects consumers' purchasing decisions in Phra Nakhon Si Ayutthaya Province (34.2percent). When considering each aspect, we found that tangibility ($\beta = 0.632$) had a statistically significant influence on consumers' purchasing decisions of electric motorcycles in Phra Nakhon Si Ayutthaya Province at 0.01 level and responsiveness ($\beta = -0.104$) had a statistically significant influence on consumers' purchasing decisions of electric motorcycles in Phra Nakhon Si Ayutthaya Province at 0.05 level. We could write forecast equations:

\hat{Y} (Quality of Service) = 3.450 + 0.318 (tangibility) - 0.047 (responsiveness)

VI. DISCUSSION

According to a research study on service quality that affects consumers' decision to buy electric motorcycles in Phra Nakhon Si Ayutthaya Province, there were 5 characteristics: tangibility, reliability, responsiveness, assurance, and empathy. We prioritize users in descending order: assurance, reliability, tangibility, responsiveness, and empathy.

Tangibility was significantly correlated with consumers' decision to buy electric motorcycles in Phra Nakhon Si Ayutthaya at 0.01, so the hypothesis was accepted.

Reliability was significantly correlated with consumers' decision to buy electric motorcycles in Phra Nakhon Si Ayutthaya at 0.01, so the hypothesis was accepted.

Responsiveness was significantly correlated with consumers' decision to purchase electric motorcycles in Phra Nakhon Si Ayutthaya at 0.01, so the hypothesis was accepted.

Assurance was significantly correlated with consumers' decision to buy electric motorcycles in Phra Nakhon Si Ayutthaya Province at 0.01, so the hypothesis was accepted.

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Empathy was significantly correlated with consumers' purchasing decisions in Phra Nakhon Si Ayutthaya Province at 0.01, so the hypothesis was accepted.

VII. CONCLUSION

There were three empirical outcomes of this research study:

1. Overall, consumers in Phra Nakhon Si Ayutthaya had a very high level of satisfaction with service quality, namely tangibility, reliability, assurance, responsiveness, empathy. Therefore, operators must pay attention to such matters as it affects the purchasing decision of electric motorcycles.

2. Quality of service that influences consumers' decision to buy electric motorcycles in Phra Nakhon Si Ayutthaya Province were:

In terms of tangibility, the overall satisfaction level was very high. The company's products are of excellent quality. The exterior of motorcycle influences purchasing decisions. The location of the company facilitates the use of the service. The company's employees dressed politely and neatly.

In terms of reliability, the overall satisfaction level was very high. A company's reputation influences purchasing decisions. The display of the company's product and service standard label affects the purchasing decision. Quality management standards in production and distribution, as well as reliable after-sales service, affect the company's purchasing decisions.

In terms of assurance, the overall satisfaction level was very high. The company's reputation and expertise in the production of electric two-wheel motorcycles make customers feel confident and safe when using the company's electric two-wheel motorcycle products. Customers can contact the service provider for advice.

In terms of responsiveness, the overall satisfaction level was very high. The staff is enthusiastic about serving customers. Employees are available to answer questions or provide information. The number of employees suffices to provide services. Timely service affects purchasing decisions.

In terms of empathy, the overall satisfaction level was very high. The company has an after-sales service that can meet the needs of consumers well. The company cares about consumers. The company's employees greet customers in a friendly manner.

3. Consumers' decision to purchase electric motorcycles in Phra Nakhon Si Ayutthaya Province was found to have a very high level of satisfaction overall. The key characteristics with an average score of 4.58 were: convenience, speed, and ease of purchasing a product affect your purchasing decision. The lifestyle of consumers affects the decision to buy an electric two-wheel motorcycle. Public relations and information updates affect consumers' purchasing decisions for electric

two-wheeled motorcycles. The appearance of electric two-wheeled motorcycles influences consumer purchasing decisions.

Therefore, in the highly competitive motorcycle market, one of the most important challenges of motorcycles from the point of view of academics and industry practitioners is to make electric motorcycles have a positive influence on consumers' purchase intentions. The results help researchers and practitioners in the motorcycle industry gain empirical evidence showing that it plays an important role in determining purchase intent for electric motorcycles.

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Marketing Mix Factors Influencing the Purchase Decision of Big Bike Motorcycle in Phra Nakhon Si Ayutthaya

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Abstract— The sales of the Covid-19 epidemic situation directly affected motorcycles. The researcher studied the marketing mix factors influencing the decision to buy a big bike motorcycle in Phra Nakhon Si Ayutthaya Province. The objectives were 1) to study the factors of the marketing mix (7P's). 2) To study the decision to buy a big bike motorcycle. 3) To study the factors of the marketing mix that influence the decision to buy a big bike motorcycle in Phra Nakhon Si Ayutthaya Province. This research was a quantitative study. The sample was a population of 390 people interested in big bike motorcycle in Phra Nakhon Si Ayutthaya Province. The research tool was a questionnaire. We collected data using simple random sampling. The statistics used to analyze the data are frequency, percentage, mean, standard deviation, and multiple regression analysis. The results showed that the overall marketing mix was high ($\bar{x}=4.21$, $S.D.=0.61$), the opinions on product factors were high ($\bar{x}=4.32$, $S.D.=0.48$), and the respondents' opinions were high ($\bar{x}=3.89$, $S.D.=0.76$). The results of the study on the purchase decision because of the reasonable price, the opinions of the respondents were high ($\bar{x}=4.10$, $S.D.=0.87$). The market mix factor of the respondents' 7P's (independent variable) could predict the dependent variable at 15.70%. An Adjusted R square (R^2) of 0.586 showed that the marketing mix of 7P's significantly influenced the decision to buy a big bike motorcycle of consumers in Ayutthaya at the 0.05 level. The entrepreneurs could apply the results to their marketing strategy planning and create a competitive advantage in the same business. The research results have indicated as follows: 1. The decision to buy a big bike motorcycle in Phra Nakhon Si Ayutthaya Province was high ($\bar{x}=3.89$, $S.D.=0.76$). The most important factor was the purchase decision as the reasonable price was high ($\bar{x}=4.10$, $S.D.=0.87$). 2. Marketing mix factor (7P's) of respondents, we could combine independent variables to forecast dependent variables at 15.70 percent

Keywords— Marketing Mix, Decision Making

I. INTRODUCTION

A motorcycle is a vehicle that has the flexibility to travel in traffic-congested countries. Since the motorbike doesn't consume much fuel, it saves fuel. In addition, the cost of maintenance and repair parts is not very high and is a vehicle that can travel to various places quickly and easy parking.

As the epidemic of Covid-19 has severely affected the economy, people need to be more aware of their spending on goods, especially luxury goods. The situation directly affected motorcycles and thus influence overall motorcycle sales. Kasikorn Research Center forecasts that in 2020, we estimated sales at 1,300,000 to 1,350,000 units, hitting a 19-year low in the domestic motorcycle market. With a shrinkage rate of over 21-24 percent, we estimated that motorcycles under 125 cc were the most affected. Sales were likely to fall from 966,000 to 1,003,000 vehicles, a 25-28 percent drop from last year. This is because the major buyers

have lower purchasing power and financial institutions were more cautious in their lending [1].

Based on the above information, it is appropriate to study the influence of service quality that affects consumers' decision to buy the big bike motorcycle in Phra Nakhon Si Ayutthaya Province as a useful guideline for business operators of big bike motorcycle. We then use the results as a guideline for improving and optimizing the marketing planning of the big bike to cope with competition from competitors in current and future situations and to meet consumer demand.

II. RESEARCH OBJECTIVES

- 1) To study the factors of the marketing mix (7P's)
- 2) To study the decision to buy a big bike motorcycle in Phra Nakhon Si Ayutthaya Province
- 3) To study the factors of the marketing mix that influence the decision to buy a big bike motorcycle in Phra Nakhon Si Ayutthaya Province.

III. LITERATURE REVIEW

In this study, the researcher aimed to study the marketing mix factors influencing the decision to purchase a big bike motorcycle in Phra Nakhon Si Ayutthaya Province: the marketing mix was the study of factors that influence the decision to purchase a big bike motorcycle. In this study, the concept of Kotler, P. (1997) [2] was applied by dividing the marketing mix into 7 areas and called the "7P's Marketing Mix," which comprised: 1. product, 2. price, 3. place, 4. promotion, 5. people, 6. process, and 7. physical evidence. Marketing mix variables (7P's) influenced purchasing behavior. Consistent with research by Rahayuet al (2015), states that there was a significant effect of the marketing mix in which there was a 7P element on consumer decisions in taking action to consume a service. 4P's marketing mix lacks comprehensive customer interaction factors, so we need to add people, process, and physical evidence to get a marketing mix suitable for service marketing [3][4]. We adapted the marketing mix to better serve the needs of consumers. The traditional 4P's marketing mix includes product, price, place, and promotion. In 1981, Jerome McCarthy added three factors: people, process, and physical evidence to make the business more flexible in providing services [5].



Figure 1. Concept model 7P's Marketing Mix

Source : www.google.com

The purchase decision was the dependent variable for this study. We made the purchase decision only when there was a choice between the two brands. Individuals made choices according to their preferences in the sense that "Which one gives the best advantage or which one has the least disadvantage?" Consumers typically required comparative information or timing to decide [6][7]. Purchase decisions in different situations may produce different results. To buy or not buy products, sometimes consumers may buy according to their habits, but sometimes consumers make careful decisions. Therefore, purchase decisions can affect consumers' purchase decisions [8][9][10]. Consistent

with the research of R. Visuthiwat, the results of the hypothesis testing revealed that marketing mix factors such as products, price, place, promotion, people, process, and physical evidence related to the decision making to buy cutting tools imported from abroad with a coefficient(r) 0.175- 0.673 with statistical significance at the 0.05 level [11]. Therefore, purchase decisions affected the selection of products that met their needs or are suitable according to the criteria for individual consideration.



Figure 2. Concept model The Consumer Buying Process
Source : www.google.com

Conceptual framework

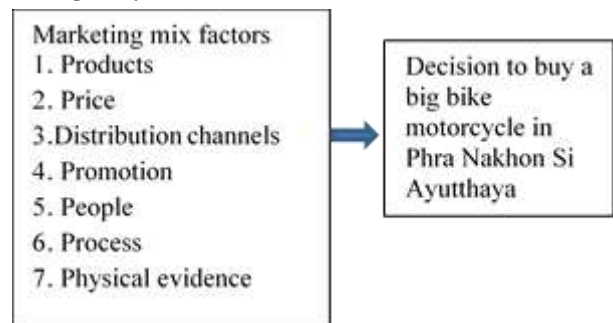


Figure 3. Marketing mix factors influencing the decision to buy a big bike motorcycle in Phra Nakhon Si Ayutthaya Province

IV. RESEARCH METHODS

Therefore, purchase decisions affected the selection of products that met their needs or were suitable according to the criteria for individual consideration.

This was quantitative research on the market mix factors that influence the decision to buy a big bike motorcycle in Phra Nakhon Si Ayutthaya Province. The population used in this

study was a group of people interested in buying a big bike motorcycle. The study used non-probability sampling and convenience sampling methods by calculating from W.G. Cochran's unknown sample size formula with a 95% confidence level and a 5% error level [12][13]. We collected data from a sample of 390 people; we conducted the questionnaire confidence test using 30 questionnaires, and we tested the collected data using statistical methods. Cronbach's alpha coefficient was 0.70 - 0.81 [14]. Therefore, it concluded that the questionnaire was valid and confident. The statistics used in the study comprised descriptive statistics, which were used in the descriptions comprising frequency, percentage, mean, standard deviation, and inferential statistics (Multiple Regression Analysis).

V. RESEARCH RESULTS

The demographic characteristics of the sample were 76.40% male and 23.60% female, aged 31-40 years (49.2 percent), undergraduate degree or equivalent (65.90 percent), occupation as employees of private companies or work for a wage (49.20 percent), and average income 10,000–30,000 baht (62.30 percent).

The marketing mix factor, overall, the respondents' opinions were at a high level ($\bar{x}=4.21$, S.D.=0.61). When considering each aspect, we found the product factor had the highest level of opinion ($\bar{x}=4.32$, S.D.=0.48); followed by the price the respondents' opinions were at a high level ($\bar{x}=4.28$, S.D.=0.49); thirdly, process, the respondents' opinions were at a high level ($\bar{x}=4.25$, S.D.=0.67); fourthly, people, the respondents' opinions were at a high level ($\bar{x}=4.24$, S.D.=0.65); fifthly, promotion, the respondents' opinions were at a high level ($\bar{x}=4.18$, S.D.=0.70); sixthly, physical evidence, the respondents' opinions were at a high level ($\bar{x}=4.17$, S.D.=0.58) and finally, distribution channels, the respondents' opinions were at a high level ($\bar{x}=4.03$, S.D.=0.71), respectively.

The decision to buy a big bike motorcycle in Ayutthaya, the respondents' opinions were at a high level ($\bar{x}=3.89$, S.D.=0.76). Looking at each aspect, the purchase decision because of the reasonable price, the respondents' opinions were at the highest level ($\bar{x}=4.10$, S.D.=0.87); followed by purchase decisions because of the shape and quality of the product, the respondents' opinions were at a high level ($\bar{x}=4.09$, S.D.=0.76); thirdly, the purchase decision because of family, friends or acquaintances, the respondents' opinions were at a high level ($\bar{x}=4.05$, S.D.=0.75); fourthly, purchase decisions because of brand reputation, the respondents' opinions were at a high level ($\bar{x}=4.01$, S.D.=0.68); fifthly, the purchase decisions because of the promotion, the respondents' opinions were at a high level ($\bar{x}=3.94$, S.D.=0.73); sixthly,

the purchase decisions because of personnel services, the respondents' opinions were at a high level ($\bar{x}=3.66$, S.D.=0.78) and lastly, the purchase decision because of the convenience of travel to service centers, the respondents' opinions were at a high level ($\bar{x}=3.42$, S.D.=0.79), respectively

Table 1 Multiple regression analysis of 7P's marketing mix factor variables

Marketing mix factors	b	β	S.E.	t	P
Constant (a)	-4.4		1.5	-2.9	.00
	76		25	34	4
1. Products	0.3	0.277	0.0	7.3	.00
	68		50	23	0
2. Price	0.9	0.269	0.1	6.5	.00
	88		50	68	0
3. Distribution channels	0.6	0.179	0.1	4.8	.00
	76		41	03	0
4. Promotion	0.1	0.081	0.0	2.1	0.0
	36		64	40	33
5. People	-0.3	-0.15	0.0	-4.3	0.0
	32	7	77	07	00
6. Physical evidence	0.6	0.328	0.0	7.9	0.0
	92		87	20	00
7. Process	0.2	0.108	0.0	2.8	0.0
	20		78	18	05
R=.771	Adjusted Square	R =	SE.est. = 2.006		
	.586				

The marketing mix factor of the respondents' 7P's model was determined by using independent variables to predict the dependent variable at 15.70%. Adjusted R square (R^2) is equal to 0.586. When considering each aspect, we found that the product, price, distribution channels, promotion, people, physical evidence. In terms of processes, the values were $b = 0.368, 0.988, 0.676, 0.136, -0.332$ and 0.692 , respectively. This means that for every 1-unit increase, the factors are increased by $0.368, 0.988, 0.676, 0.136, -0.332$, and 0.692 respectively. Thus, it was shown that the 7P's marketing mix factor had a significant influence on consumers' decision to buy a big bike motorcycle in Phra Nakhon Si Ayutthaya Province at a significant level of 0.05.

VI. DISCUSSION

After analyzing the factors of all 27 variables, 7 new factor groups were obtained. When taking these additional groups of factors into the analysis of multiple regression equations, we found that there were 4 factors influencing consumers' decision to buy a big bike motorcycle in Phra Nakhon Si Ayutthaya Province. We sorted the regression coefficients in

descending order of products, prices, promotions, people, and processes. However, physical evidence and distribution channels factors did not affect consumers' decision to buy a big bike motorcycle in Phra Nakhon Si Ayutthaya Province. The test of hypothesis about demographic characteristics using Independent-Samples T-Test and One-Way ANOVA at a significance level of 0.05 found that different ages affected consumers' decision to buy big bike motorcycle in Phra Nakhon Si Ayutthaya Province because different ages caused different perceptions of information in each channel. In particular, each age group may have different product requirements.

VII. CONCLUSION

1. The product factor affects the purchasing decision of consumers the most, which comprises a variety of types and styles of products because besides having a variety of styles, they must also be modern and colorful. If operators can make a product attractive and appealing to consumers, and ultimately, they will make a purchasing decision.
2. The price factor affects the purchasing decision of consumers. We should set a price that is suitable for the quality of the product to make consumers feel it is worth paying. The price of the product must be affordable when compared to other brands because the product styles of each brand are not very different. If a product is similar but at a higher price, it can lead to consumers changing their minds and buying a competitor's brand.
3. Physical evidence factors affect consumers' purchase decisions. The company should create an attraction for consumers to buy the company's products. The main physical characteristics are the zoning of the product, orderly and clean, and the product should arrange so that the consumer can easily see the appearance and find the product. We should mark their directions of various departments for the convenience of new customers and help reduce the search time for products to be faster. The availability of security systems and facilities such as restaurants, restrooms, and on-site services are more attractive to consumers. Another important thing is that there must be enough parking space for the service.
4. Brand and product usage factors affect consumers' purchase decisions. We should produce products with durability, long service life, hassle-free maintenance, and brand focus, which builds a brand image of reputation and credibility because the brand will lead to product awareness to consumers.
5. Promotion and people factors affect consumers' purchase decisions. There should be an arrangement for consumers to take part in marketing promotion activities such as discounts,

redemptions, giveaways, and give something extra. In addition, advertising to promote product information to be known continuously through various channels such as television, websites and social media also helps increase consumer awareness of the product. Organizing activities at the point of sale and having after-sales services that can deliver products that meet your needs are also options to drive purchase decisions. Employees also play an important role in purchasing decisions. Employees must have excellent knowledge of the product so that they can answer questions about the products of the users. Employees who provide information should use polite words, good interpersonal skills, service-minded and quick resolution of immediate problems, including not making users wait too long. The solution should impress the consumer. Entrepreneurs should focus on the training and transfer of knowledge and practices to all employees in the same direction and in line with the organization's strategy to create a corporate image.

6. Entrepreneurs must consider consumers with different occupations because different occupations affect different purchasing decisions. For big bike motorcycle, the focus should be on an occupational class because it is a group that makes purchasing decisions easier than other groups. If there is an attractive promotion for this occupational class, it will speed up purchasing decisions. Besides occupational considerations, the average monthly income of consumers is also important because different incomes affect different purchases. However, entrepreneurs should know the income levels of the target consumers to design products to meet the needs and purchasing power of that group.

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Application of Energy Conservation Measures: In a Case Study of Fortune Town Shopping Center by Installing a Motor Speed Control Unit, a Cool Water Pump and a Big Cleaning Circulate of Package Water-Cooled of Air Conditioners 75TR and 96TR

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Abstract— This research aimed to study the guidelines on energy conservation according to the law in Thailand related to the Energy Conservation Promotion Act. The establishing appropriate measures for energy saving and study the cost-effectiveness of each economic investment measure., In a case study of the Fortune Town Shopping Center building in Bangkok. We studied this study from the installation of the motor speed control unit, cold water pump, and Big Cleaning of Circulate Package of Water-Cooled of air conditioners 75TR and 96TR. The results of the study showed that taking measures with installing a Variable Speed Drives (VSD) control unit to the secondary pump of the Chiller Plant System, and the energy-saving effect of measurement, can save energy 179,514.30 kWh/year (37.40% energy saving) with an NPV value of 727,032.91 baht/year, payback 0.41 year. When studying the measure of Big Cleaning Circulate Package Water Cooled, air conditioner sized 75TR, and 96TR. We found that the comparative electric energy between air conditioners before and after improvement. The study results can save electricity up to 738,466.26 baht/year, the investment value of 2.82 years. We can conclude that efficiency and capacity, using both measures, can save over 1.5 percent of energy. Both measures can a prototype of energy saving for buildings or other organizations.

Keywords— Energy Conservation, A Motor Speed Control Unit, Cool Water Pump, Air Conditioners, Energy Conservation Promotion Act

I. INTRODUCTION

Energy is one of the main factors for living as well as an impact on the economic growth of each country. Thailand, as a developing nation, is improving education, science, and various fields of technology, for example, engineering, medical, industrial, and building technology. These technologies are essential to the energy conservation system which helps reduce economic costs and save energy.[1,2] It is also the main support for business expansions, especially building business industries such as office buildings, hotels, industrial complexes, and shopping centers. Moreover, the more extensions of shopping centers there are, the more energy consumption will be. Constant energy consumption of shopping centers is being considered as a national issue

that influences national economics significantly.[3] As shopping centers are large buildings and provide daily long-hour service, they consume a great deal of energy. According to Energy Conservation Act 1992, shopping centers are controlled buildings where an energy conservation system is necessary.[4]

The objective of this study is to find energy conservation solutions for buildings according to Energy Conservation Act 2007 (Issue No. 2) and set proper standards for shopping centers. Also, analyze cost and economic suitability to set standards of energy conservation for shopping centers and to provide knowledge and understanding in energy conservation and saving energy to save the world.

II. MATERIALS AND METHODS

2.1 Energy planning and review

The development used indicators of the current energy source building. Then evaluate of Significant Energy was used by considering energy consumption opportunities with Considering scoring according to the criteria, As shown in Table 1. After that, The evaluation by a Significant Energy Use energy performance assessment with comparing energy efficiency and machine life. [5, 6] Record opportunities for improving the energy performance of significant energy use characteristics; By considering scoring according to the criteria [7, 8, 9], Shown in Table 2. The finally, a documented methodology used to improve energy performance. Perform calculations and evaluations of savings Investment amount payback period. Including, how to verify the results of each measure.

Table 1 Criteria For Evaluating Significant Energy Use Characteristics

(1) Power consumption	kWh/Year	Score	Rating scale
1. Minimal	<80,000	1	Minimal
2. Low	80,001 - 200000	2	Low
3. Moderate	200001 - 500,000	3	Moderate
4. More	500,001 - 900,000	4	More
5. Most	>900,000	5	Most
(2) Hours of use	hour/Year	Score	Rating scale
1. Minimal	<1000	1	Minimal
2. Low	1000 - 2999	2	Low
3. Moderate	3000 - 4999	3	Moderate
4. More	5000 - 6999	4	More
5. Most	> 7000	5	Most
(3) Improve ment potential	Opportunity for improvement	Score	Rating scale
1. Minimal	Minimal improvement	1	Minimal
2. Low	Little improvement	2	Low
3. Moderate	Moderate improvement	3	Moderate
4. More	Much improvement	4	More
5. Most	Most updated	5	Most

Annotation : The determination of any energy use characteristic has a score of more than 50 points; interpreted the result to be a Significant Energy Use.

Table 2 Criteria For Improving Energy Performance Of Significant Energy Used Characteristics

Opportunity for improvement	Score			
	1	2	3	4
1. Potential for improvement	Few opportunities to improve	Moderate improvement opportunities	Opportunity to improve a lot	Most updated opportunities
2. Investment budget (bah)	> 5,000,000	1,000,001 - 5,000,000	500,001 - 1,000,000	< 500,000
3. Economical effect (Bath*/Year)	< 100,000	100,000 - 200,000	200,000 - 300,000	> 300,000
4. Payback period (Year)	> 4	2 ~ 4	1.5~2	<1.5

Annotation : * 31.36 Thai Baht (฿) equals as 1 United States Dollar (\$)

** The score is sorted in descending order, as a selecting at least one measure to implement and measures to conserve energy without using machinery/equipment. But there is great potential and opportunity for improvement. It can saved a lot of energy and was a measure that can be easily performed without affecting the production process. And the results of the measures can be analyzed and implemented.

2.2 Economic data analysis

The Collect electricity bills and explore and collect basic information of machinery with the following details. [10, 11, 12, 13] As shown in Table 3. and Table 4.

This data of research was kept and calculating by used formular of Payback Period = PB, Payback period = Investment / Annual Income [11, 14], Net Present Value (NPV), Evaluate the initial investment, The project life is 5 years.[15,16], Calculate annual cash inflow, Discount Rate 10%, Net present value = present value of net cash flows over the life of the investment project, and PV Factor. [12, 17, 18]. The finally, make a report.

Table 3. Basic information of chiller plant systems in plaza department stores

Machine / Main Equipment Name	coordinates		Performance value	
	Size	Unit	Actual use	Unit
Chiller-02	450	TR	0.75	kW/TR
Chiller-03	450	TR	0.63	kW/TR
Chiller-04	450	TR	0.69	kW/TR
Chiller-1/1	285	TR	0.89	kW/TR
Chiller-1/2	285	TR	0.89	kW/TR
Cool water pump CHP 01-01	11	kW	88.12	GPM/kW
Cool water pump CHP 01-03	11	kW	84.31	GPM/kW
Cool water pump CHP 01-04	11	kW	77.75	GPM/kW
Cool water pump CHP 02-01	45	kW	21.87	GPM/kW
Cool water pump CHP 02-02	45	kW	20.20	GPM/kW
Cool water pump CHP 02-03	45	kW	20.48	GPM/kW
Cool water pump CHP 02-04	45	kW	21.26	GPM/kW
Coolant pump COP-01	30	kW	27.21	kW
Coolant pump COP-02	30	kW	96.27	kW
Coolant pump COP-03	30	kW	82.28	kW
Coolant pump COP-04	30	kW	27.21	kW
Cooling Tower 1	500	TR	46.00	%
Cooling Tower 2	500	TR	54.00	%
Cooling Tower 3	500	TR	53.00	%
Cooling Tower 4	500	TR	53.00	%

Table 4. Basic information of package water cooled system, it mall section

Machine / Main Equipment Name	coordinates		Performance value	
	Size	Unit	Actual use	Size
Cooling Tower No.1	1000	TR	47.74	%
Cooling Tower No.2	1000	TR	47.74	%
Cooling Tower No.3	1000	TR	47.74	%
Cooling Tower No.4	1000	TR	47.74	%
Cooling Tower No.5	1000	TR	47.74	%
Coolant pump COP-01	55	kW	70.36	GPM/kW
Coolant pump COP-02	55	kW	70.36	GPM/kW
Coolant pump COP-03	55	kW	70.36	GPM/kW
Coolant pump COP-04	55	kW	70.36	GPM/kW
Coolant pump COP-05	55	kW	70.36	GPM/kW
Coolant pump COP-06	55	kW	70.36	GPM/kW
Coolant pump COP-07	55	kW	70.36	GPM/kW
Package Water Cool AC05	75	TR	0.73	kW/Ton
Package Water Cool AC06	75	TR	1.11	kW/Ton
Package Water Cool AC07	46	TR	2.79	kW/Ton
Package Water Cool AC08	15	TR	-	kW/Ton
Package Water Cool AC12	28	TR	-	kW/Ton
Package Water Cool AC33	75	TR	1.81	kW/Ton

Package Water Cool AC34	75	TR	2.72	kW/Ton
Package Water Cool AC35	75	TR	1.28	kW/Ton
Package Water Cool AC36	96	TR	0.57	kW/Ton
Package Water Cool AC37	46	TR	0.68	kW/Ton
Package Water Cool AC38	75	TR	0.82	kW/Ton

Table 4. (continue) basic information of package water cooled system, it mall section

Machine / Main Equipment Name	coordinates		Performance value	
	Size	Unit	Actual use	Size
Package Water Cool AC43	96	TR	0.92	kW/Ton
Package Water Cool AC44	96	TR	1.16	kW/Ton
Package Water Cool AC45	75	TR	1.69	kW/Ton
Package Water Cool AC46	96	TR	1.41	kW/Ton
Package Water Cool AC47	96	TR	1.54	kW/Ton

III. RESULTS AND DISCUSSION

3.1 The result of general information of the organization

The organization is a jewelry factory. The area of the plaza, including every floor, is approximately 84,239.67 SQ.M. The whole area can be divided into the area with air-conditioners, 69,394.62 SQ.M, and without air-conditioners, 14,845.05 SQ.M. The area of IT mall is around 43,677 SQ.M, divided into with and without air-conditioners, 42,947.86 SQ.M. and 729.14 SQ.M, respectively. Fortune Town Shopping Center opens 12 hours a day. Proportions of electricity consumption in the building are as following in figure. 1.

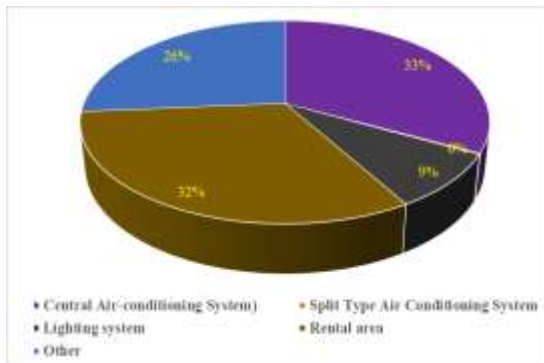


Figure 1. Amount and proportion of energy classified by system used in Fortune Town shopping center and plaza. Energy used separation system to analyze the significant energy consumption of the system, with 34% of water coolers consuming in the largest energy; The shopping malls used 80% of the total area of air conditioning. (84,239.67 square meters), with the parking area wasn't used air conditioning. Thus causing a lot of energy consumption in the chiller. Systematic energy consumption fractionation for the analysis of significant energy consumption of the system. The air conditioners (Package Water Cooled) used up to 34% of energy as the shopping center. Air conditioning is used 98% of the area 43,677 square meters, thus causing a lot of energy consumption in Package Water Cooled of air conditioner, As shown in figure. 2.

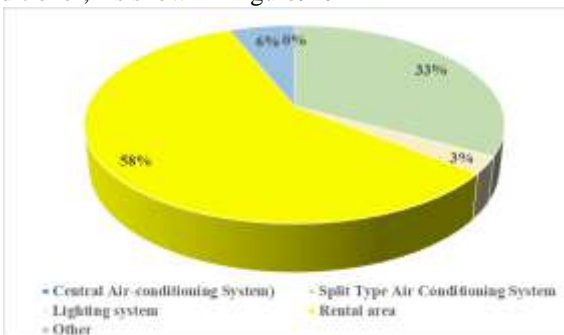


Figure 2. Amount and proportion of energy classified by system used in Fortune Town Shopping Center IT Mall section

3.2 Data base on the evaluation of Significant Energy use characteristics

The results of Significant Energy Use Assessment, Fortune Town Shopping Center, Plaza Section was to study found that any type of energy use with a score of 11 points or more would be considered as a Significant Energy Use and the SEU was summarized by machines that were significant across the entire plaza.[19] And the IT Mall section. As shown in Table 5. And Table 6.

Inclusion, Data based on the results of the Significant Energy Use assessment, if any of the characteristics of any

energy has a score of 11 points or higher, it is considered to be a Significant Energy Use and Summarize the list of SEU by machines that are significant in the entire plaza. And the IT Mall section.

3.3 Details of methods used to improve energy capacity. Calculation of energy-saving and economic data analysis.

3.3.1 Installing two sets of motor speed control unit (VSD) and cool water pump. In the plaza area, it is a central air-conditioning system. There are three sets of 450-ton cool water pumps and two sets of 285-ton. Two sets of 450-ton and one of 285-ton are turned on. The cool water flow rate is about 2,844 GPM/machine. In the building, they use primary/secondary pumps, three sets of the 11-Kilowatt primary pump but operate only two of them. They operate 14 hours a day. Four sets of the 45-Kilowatt secondary pump are also available. The cool water flow rate is about 1,080 GPM/machine. Operate three machines at a time, 14 hours daily, 365 days yearly. They operate continuously during working hours.

Before the renovation, a 2-way valve at AHU was used for cooling control to adjust the coolant level. As the temperature during the day was varied, it was found that the workload of the coolant system was sometimes less than 60%. (before and after working hours) As a result, the installation of the motor speed control units with the water pump was proceeded to adjust the level of water flow which helps balance actual workload and reduce consumption of electric power of the central air-conditioning system.

The installation of the motor speed control units with two sets of secondary water pump size 45 Kilowatt was done to adjust the water flow as figure 3. and Table. 7

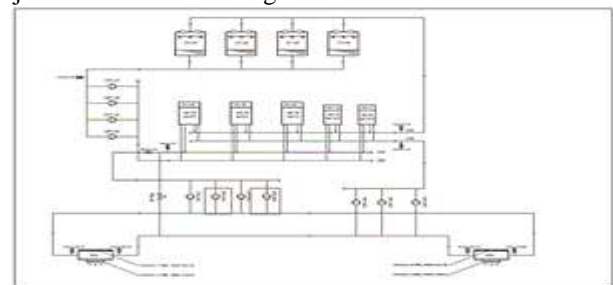


Figure 3. Installation Diagram of Fortune Town Plaza Section

Table 7. Chilled water transmitter power

Machine list	Water Flow Rate (GPM)	Nameplate (kW)	Measurement value (kW)
Primary Pump			
Cool water pump CHP 01-01	1080	11	11.80

Cool water pump CHP 01-03	1080	11	11.87
Cool water pump CHP 01-04	1080	11	13.12
Secondary Pump			
Cool water pump CHP 02-01	1080	45	46.30
Cool water pump CHP 02-02	1080	45	ชำระ
Cool water pump CHP 02-03	1080	45	47.63
Cool water pump CHP 02-04	1080	45	48.33

Annotation : Consider installing a variable speed motor with a chilled water transmitter CHP 02-01 and a chilled water pump CHP 02-03.

3.3.2 Installing big cleaning circulate of package water-cooled of air-conditioners 75TR and 96TR to enhance efficiency and reduce energy consumption in air pressure system. As the old air-conditioners have been used for a long time, their cooling rate is low. Moreover, when the air-conditioners operate both during load and unload, it was found that the machine overload. It might be caused by clogging in shell and tube heat exchanger and dirty coils. The problems cause energy waste. For this reason, to save energy and increase their efficiency, big cleaning of air-conditioners is needed. The procedures are following:

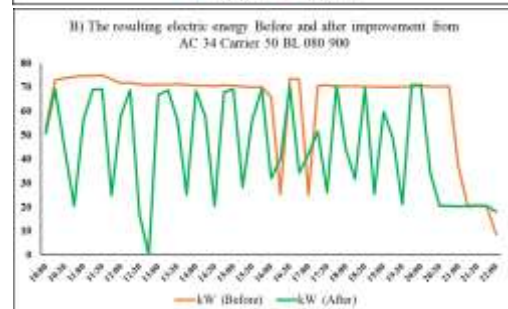
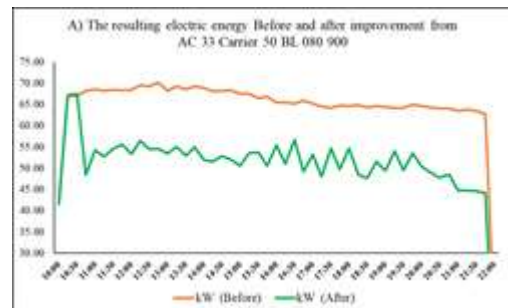
Before the renovation, 16 air-conditioners size 46TR, 75TR, and 96TR are normally operating. Most of them have been used for more than 25 years. Some of them are low efficient. To increase their efficiency, reduce energy consumption, and down costs, big cleaning of the air-conditioners was processed. This also helps prevent air-conditioners from broken-downing during service hours. As shown in table 8, table 9 and figure 4.

Table 8 Data Base of air conditioner (Package Water Cooled)

Brand / Model	Year	Type	Cooling capacity	
			kW	Btu/HR
AC 33 Carrier 50 BL 080 900	1992	Package Water Cooled	64.79	901,818
AC 34 Carrier 50 BL 080 900	1992		63.86	901,818
AC 35 Carrier 50 BL 080 900	1992		63.50	901,818
AC 38Carrier 50 BL 080 900	1992		62.83	901,818
AC 46 Carrier 50 BL 100 900	1992		66.03	1,153,560

Table 9 Performance of Package Water Cooled of air conditioner before improvement - after improvement

Brand / Model	Before			After		
	Size (TR)	Operating power (kW)	Cost of use kW/TR	Size (TR)	Operating power (kW)	Cost of use kW/TR
AC 33 Carrier 50 BL 080 900	75	64.79	2.95	75	50.96	1.81
AC 34 Carrier 50 BL 080 900		63.86	3.05		44.65	1.51
AC 35 Carrier 50 BL 080 900		63.50	2.65		61.67	2.02
AC 38Carrier 50 BL 080 900		62.83	1.51		52.69	1.14
AC 46 Carrier 50 BL 100 900	96	66.03	2.88	96	59.01	0.77



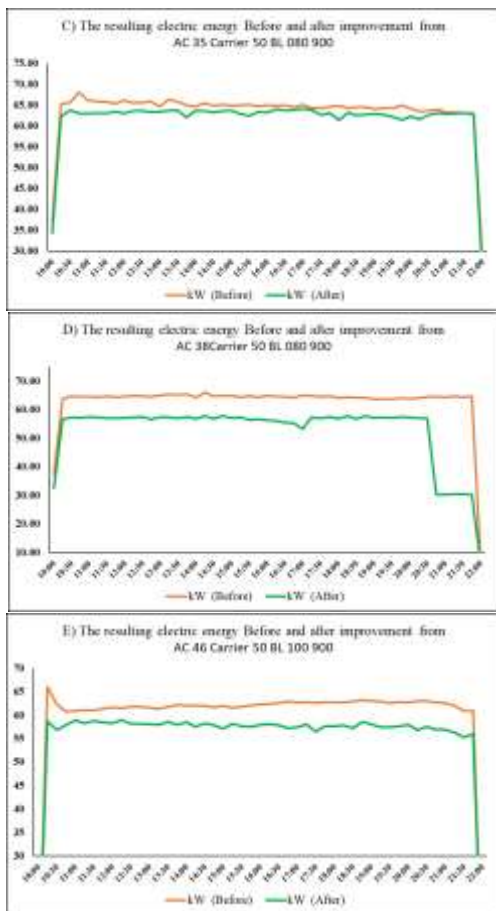


Figure. 4 Power consumption from air conditioner before - after the operation is completed.

The results of economic data analysis and economic calculation for the investment of installation of big cleaning circulate package water-cooled including operation fee was 35,410 Baht. It will last long five years. There was no interest rate. This will help reduce electricity consumption by 182,337.35 kWh/year or save cost 738,466.26 Baht/year. According to NPV, this saves energy 7,598,717.62 Baht, IRR 10,778.71, and will gain back within 2.82 years.

IV. CONCLUSIONS

4.1 After studying Energy Conservation Act 2007 (Issue No. 2) and setting proper standards for shopping centers, it was found that the standards help reduce energy consumption in both the plaza area and IT mall 361,851.65 Units or 1.51%.

4.2 According to energy saving analysis, it represented the conclusions of energy-saving and economic values in each standard as follows:

4.3 Before installing two sets of motor speed control units (VSD) and cool water pumps in the plaza area, the energy consumption was 479,982.30 kWh/year. After installing, the

energy consumption decreased to 300,468.00 kWh/year. It saved energy 179,514.30 kWh/year.

4.4 The results of economic data analysis and economic calculation for the investment of two sets of motor speed adjusting installation at secondary pump size 45 kW including installation fee was 300,000 Baht. They will last long five years. There was no interest rate. This investment will help reduce electricity consumption by 179,514.30 kWh/year or save 727,032.91 Baht/year. According to NPV, this saves 3,335,164.55 Baht, IRR 1,122%, and will gain back within 0.41 year.

4.5 To improve the efficiency of air-conditioner size 75TR and 96TR and reduce energy consumption in air pressure system by installing big cleaning circulate package water-cooled.

4.6 The results of economic data analysis and economic calculation for the investment of big cleaning circulate package water-cooled including operation fee was 35,410 Baht. It will last long five years. There was no interest rate. This helps reduce electricity consumption by 182,337.35 kWh/year or save 738,466.26 Baht. According to NPV, this saves 7,598,717.62 Baht, IRR 10,778.71%, and will gain back within 2.82 years.

V. SUGGESTIONS

5.1 Set scope and limitation to cover energy consumption system and energy management system which correlate with the business.

5.2 Energy management should not overemphasize technical. Effective and continual operation is needed.

5.3 Energy management system according to Energy Conservation Act 2007 (Issue No. 2) should be applied as the main tool to enhance continuing and sustainable efficiency.

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Table 5. Results of Significant Energy Use Assessment, Fortune Town Shopping Center, Plaza Section

Machine/ Equipment	Type of Energy	(1) Power consumption					(2) Machine Hours					(3) Potential for Improvement				Score (1) x (2) x (3)	Priority Scale	Level of Importance
		Very low (1 Score)	Low (2 Score)	Moderate (3 Score)	High (4 Score)	Very High (5 Score)	Very low (1 Score)	Low (2 Score)	Moderate (3 Score)	High (4 Score)	Very High (5 Score)	Very low (1 Score)	Low (2 Score)	Moderate (3 Score)	High (4 Score)			
Chiller No.3	Electrical												<input type="checkbox"/>			20	3	M
Chiller No.4	Electrical				<input type="checkbox"/>			<input type="checkbox"/>					<input type="checkbox"/>			16	3	M
Cooling Tower 1	Electrical	<input type="checkbox"/>							<input type="checkbox"/>						<input type="checkbox"/>	12	4	M
Cooling Tower 2	Electrical	<input type="checkbox"/>							<input type="checkbox"/>						<input type="checkbox"/>	12	4	M
Cooling Tower 3	Electrical	<input type="checkbox"/>							<input type="checkbox"/>						<input type="checkbox"/>	12	4	M
Cooling Tower 4	Electrical	<input type="checkbox"/>							<input type="checkbox"/>						<input type="checkbox"/>	12	4	M
COP-01	Electrical		<input type="checkbox"/>						<input type="checkbox"/>					<input type="checkbox"/>		18	3	M

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COP-02	Electrical		<input type="checkbox"/>							<input type="checkbox"/>							18	3	M
COP-03	Electrical		<input type="checkbox"/>							<input type="checkbox"/>							18	3	M
COP-04	Electrical		<input type="checkbox"/>							<input type="checkbox"/>							18	5	M
PCHP 01-01	Electrical	<input type="checkbox"/>								<input type="checkbox"/>							9	5	L
PCHP 01-03	Electrical	<input type="checkbox"/>								<input type="checkbox"/>			<input type="checkbox"/>				6	5	L
PCHP 01-04	Electrical	<input type="checkbox"/>								<input type="checkbox"/>			<input type="checkbox"/>				6	5	L
SCHP 02-01	Electrical		<input type="checkbox"/>							<input type="checkbox"/>					<input type="checkbox"/>		24	2	M
SCHP 02-02	Electrical		<input type="checkbox"/>					<input type="checkbox"/>							<input type="checkbox"/>		16	3	M
SCHP 02-03	Electrical		<input type="checkbox"/>							<input type="checkbox"/>					<input type="checkbox"/>		24	2	M
SCHP 02-04	Electrical		<input type="checkbox"/>						<input type="checkbox"/>						<input type="checkbox"/>		16	3	M
Flouresent 36 Watt	Electrical					<input type="checkbox"/>				<input type="checkbox"/>					<input type="checkbox"/>		48	1	H
Flouresent 18 Watt	Electrical		<input type="checkbox"/>							<input type="checkbox"/>					<input type="checkbox"/>		24	2	M

** There are 3 types of priority level: 1) High = H 2) Medium = M and 3) Low = L

Table 6. Results of Significant Energy Use Assessment, Fortune Town Shopping Center IT Mall section

Machine/Equipment	Type of Energy	(1) Power consumption					(2) Machine Hours					(3) Potential for Improvement				Score (1) x (2) x (3)	Priority Scale	Level of Importance	
		Very low (1 Score)	Low (2 Score)	Moderate (3 Score)	High (4 Score)	Very High (5 Score)	Very low (1 Score)	Low (2 Score)	Moderate (3 Score)	High (4 Score)	Very High (5 Score)	Low (1 Score)	Moderate (2 Score)	High (3 Score)	Very High (4 Score)				
Cooling Tower No.1	Electrica 1					<input type="checkbox"/>	<input type="checkbox"/>								<input type="checkbox"/>		15	5	M
Cooling Tower No.2	Electrica 1	<input type="checkbox"/>								<input type="checkbox"/>					<input type="checkbox"/>		6	6	L
Cooling Tower No.3	Electrica 1	<input type="checkbox"/>								<input type="checkbox"/>					<input type="checkbox"/>		6	6	L
Cooling Tower No.4	Electrica 1	<input type="checkbox"/>								<input type="checkbox"/>					<input type="checkbox"/>		6	6	L
Cooling Tower No.5	Electrica 1	<input type="checkbox"/>								<input type="checkbox"/>					<input type="checkbox"/>		6	6	L
COP-01	Electrica 1				<input type="checkbox"/>					<input type="checkbox"/>					<input type="checkbox"/>		36	3	H
COP-02	Electrica 1		<input type="checkbox"/>							<input type="checkbox"/>					<input type="checkbox"/>		12	5	L
COP-03	Electrica 1		<input type="checkbox"/>							<input type="checkbox"/>					<input type="checkbox"/>		12	5	L
COP-04	Electrica 1			<input type="checkbox"/>						<input type="checkbox"/>					<input type="checkbox"/>		27	4	M
COP-05	Electrica 1		<input type="checkbox"/>							<input type="checkbox"/>					<input type="checkbox"/>		18	5	L
COP-06	Electrica 1			<input type="checkbox"/>						<input type="checkbox"/>					<input type="checkbox"/>		27	4	M
COP-07	Electrica 1				<input type="checkbox"/>					<input type="checkbox"/>					<input type="checkbox"/>		36	3	H
Package Water Cool AC05	Electrica 1			<input type="checkbox"/>						<input type="checkbox"/>					<input type="checkbox"/>		36	3	H
Package Water Cool AC06	Electrica 1				<input type="checkbox"/>					<input type="checkbox"/>					<input type="checkbox"/>		48	2	H
Package Water Cool AC07	Electrica 1				<input type="checkbox"/>					<input type="checkbox"/>					<input type="checkbox"/>		36	3	H
Package Water Cool AC08	Electrica 1	<input type="checkbox"/>								<input type="checkbox"/>					<input type="checkbox"/>		9	6	L
Package Water Cool AC12	Electrica 1	<input type="checkbox"/>								<input type="checkbox"/>					<input type="checkbox"/>		9	6	L

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Package Water Cool AC33	Electrica 1				<input type="checkbox"/>										<input type="checkbox"/>	48	2	H
Package Water Cool AC34	Electrica 1				<input type="checkbox"/>										<input type="checkbox"/>	48	2	H
Package Water Cool AC35	Electrica 1				<input type="checkbox"/>										<input type="checkbox"/>	48	2	H
Package Water Cool AC36	Electrica 1			<input type="checkbox"/>										<input type="checkbox"/>		27	4	M
Package Water Cool AC37	Electrica 1		<input type="checkbox"/>											<input type="checkbox"/>		18	6	L
Package Water Cool AC38	Electrica 1				<input type="checkbox"/>									<input type="checkbox"/>		48	2	H
Package Water Cool AC43	Electrica 1					<input type="checkbox"/>								<input type="checkbox"/>		45	3	H
Package Water Cool AC44	Electrica 1			<input type="checkbox"/>									<input type="checkbox"/>			9	6	L
Package Water Cool AC45	Electrica 1			<input type="checkbox"/>										<input type="checkbox"/>		27	4	M
Package Water Cool AC46	Electrica 1				<input type="checkbox"/>									<input type="checkbox"/>		48	2	H
Package Water Cool AC47	Electrica 1					<input type="checkbox"/>								<input type="checkbox"/>		45	3	H
Flouresnt 36 Watt	Electrica 1					<input type="checkbox"/>								<input type="checkbox"/>		60	1	H

Annotation : * Significant Energy Use assessment scores are based on Table 2-1.

** There are 3 types of priority level: 1) High = H 2) Medium = M and 3) Low = L

Skill for Social Teaching on 21st Century by Problem-Based Learning of Buddhist Monks in Mahachulalongkornrajavidyalaya University

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Abstract— The research was skill for Social Teaching on 21st Century by Problem-Based Learning of Buddhist Monks in Mahachulalongkornrajavidyalaya University. There were objectives as follow, 1) to study skill for Social Teaching on 21st Century by Problem-Based Learning of Buddhist Monks. 2) To develop guideline of study skill for Social Teaching on 21st Century by Problem-Based Learning of Buddhist Monks. 3) To propose the method for Social Teaching on 21st Century by Problem-Based Learning of Buddhist Monks. According to variables data base had got from online accept questionnaires for monks' numbers 80 persons and key performance from interview for 9 persons as researcher was set. The researchers found that; 1) It must have been method teaching by Children Center. 2) It must have been the Buddha's style or manner of teaching namely verification, inspiration, encouragement, and joy. 3) It must have been format teaching then motivate students how to get how to know not only remember. 4) It must have been applying new normal great and nearly theories for management studies. 5) It must have been teaching social studies system in Mahachulalongkornrajavidyalaya University has core value for Buddhist Tipitaka studies then students have to integrate other subjects as interesting. 6) It must have been the Buddha's style all Buddhist Monks in Mahachulalongkornrajavidyalaya University must be gotten cultivate about Buddha's style or manner of teaching. 7) It must have been form for moral pedagogy or process for teaching. 8) It must have been an apply moral pedagogy and instrument teaching for environment person natural as the Buddha was teaching and theory for teaching. 9) It must concern with MCU Mahachula Navalak as follow, M = Morality, A = Awareness, H = Helpfulness, A = Ability, C = Curiosity, H = Hospitality, U = Universality, L = Leadership, A = Aspiration. The applying some theory for teaching social studies should have integrated for absolutely with theory system teaching Buddha's style system for pedagogy significant namely teachers' students' instruments and environment and resource as have an impact in school and society for Social Teaching on 21st Century and so on

Keywords— Skill for Social Teaching, on 21st Century, Problem-Based Learning

I. INTRODUCTION

Teaching social studies exactly should be by paradigm process within new "learning process important than knowledge" and "Teacher not only giving knowledge". But they were designed process for learners for children and teenagers". The goal for learning was not only for knowledge at all. Because of knowledge has more meaning for students in each year. Therefore, students in new century can search knowledge from all direction from environment and internet. There was Thai still be with old paradigm process for giving knowledge for subject. Then, they cannot overtake world crisis. So that, they should be created new paradigm process to develop children and teenage for long-life learning. They will get some new knowledge for each one. Because all of them have ability to learn and developing for continue and long life.

Social development must be more changing especially for 21centuries. It was globalization for all progressive and all direction by quickly too. There were have different between century 19 and 20 at all for economics. Because they were replaced by economics and service by innovation technology and knowledge. It was reflected for successful by using complex skill. The appliance or course to help for success that mean education. For this reason, creation concept must be having for education for using technology. Education for Buddhism should have for new as suitable for 21 centuries. There were matters consist of life skills and then knowledge skill and innovation and skill for information and technology. Teaching social studies were have been teachers' duty. The important thing means to develop Thai learners to wreathy and success according to 5 core curriculums base on B.E. 2551. There were have for 1) having desirable moral ethical and value emphasize for one-self disciplinary then follow by Buddhism or other religions as respect then a long be sufficiency economy too. 2) Having knowledge and ability for

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information then thinking for solving by using technology and lives skills. 3) Having good for physical and mental then habit for exercise. 4) Having care for nation and conscious mind for good civil. 5) Having conscious mind for conservative cultural Thai wisdom and then environment conservative. There were have service mind doing for advantage the creating good thing for social and remain by happily. These purposes still be modern up to nowadays. Then, it accorded with skill for learning in 21 centuries and national strategy 20 years then Thailand model for 4.0.

Skill for Social Teaching on 21st Century by mean teacher should be consider and the across subject matters for knowing. Then, there where been concerned problem answer for social development by properly. Monks or teachers should not be still old for teaching cannot be one way also. Because, they must be let learners to know by themselves. By mean monks or teachers must be desired lesson plans like Coaching and facilities for Facilitator too. So that, Problem-Based Learning, PBL for students or pupils which be helping monks who where been teachers for management societies or for Professional Learning Communities: PLC. There were took place because of condensation between monks and teachers to change experience for doing good duties by themselves.

The outstanding of management according to Problem-Based Learning, PBL. It was be process learning management from beginning. There were problems took place by working group to solve problems and situation as happened for lifestyle then important for learners too. The cause of problems for Project-based Learning: PBL mean activities as learners' studies by themselves. They were studied with handing by themselves by using science process or others to support with cause and effect according to their process. So that, for all techniques concerning for developing learners to know all for solving problems by themselves.

Network for social, it was integrated experience and knowledge as concern between human or education for good civil. Because of social and education consist of geography history sociology anthropology economy political psychology. Then group of social subjects emphasize for organization and system by ordering of structure. There were consist of fundamental process or searching for knowledge matters.

Group of social subjects were very important by mean of concerning development skills and way of lifestyle in social then live with other by happily. Although, we can take knowledge and understanding to adjust with social condition by balance suitable and sustainability. On the other hand, they were emphasized learners to have more skillful and for all parts as for problems solving. There where been subjects for developing learners to be good civil of social since family up

to the world. So that, social learning management or nowadays called substance for learning religion and culture must be for support learners' experience have wisdom knowledge and all abilities with fulminant and suitable with their maturity. Then, they were participated and develop learning by themselves.

World social had change rapidly and all time then group of social learning for religion and culture will help learners have knowledge understanding that how to be both individual and social population. The adjustable by environment and limit resources management must be help changing according to development by period cause and effect. Individual understanding and others must be having patient tolerant by moral deafferenting. So that, they could be taken for using with lifestyle then have been good population for nation and the world.

Teaching social studies in Buddhism by using problem base learning. It was taking palace since Buddha was teaching for 5 disciples at Isitana near Benares as concern about cause and effect matters in the world. At the same time, Phra Assachi has taken his words to teach for Sariputta as flow, those were taking place by cause the Buddha said the end of suffering all matters then he was teaching accordance with these cases too. Then Sariputta was got, I see your eye, then because of this he got enlighten without particle and fault. Therefore, those things were taken place the they must be died by commonly according to cause and effect as Saripuuta has known. So that, Buddhist principle must have been Problem-Based Learning, PBL. Although, condition as support to learn and self-development such as the four Noble truth were knowledge to solve life problems. The principle of conditioned arising Paticcasamuppada was be for Problem-Based Learning, PBL, for progressive working too. There were consist of cause of suffering and others moral teaching which promote way of life as concern with social family society and nation.

Monks in Mahachulalongkornrajavidyalaya University should have more role in social by more duties. Example they were been administrator teacher officer dean who rule over and governor for all class. They were been still with social societies a long time. On this case researcher mean monks in Mahachulalongkornrajavidyalaya University only. They were responded for teaching in schools for basic and vocational education. Therefore, to continue project teaching social in schools to have effective as expectation. Students have got cultivation about moral and ethical from monks according to set planning for them by system then cooperative with institute of education administrator personnel and concern organization. They manage and cultivate moral all over country to set quality and then were recognized. They were

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expected for cultivating moral ethical wisdom and understanding with correctly and modern absolutory with 21 centuries by using Problem-Based Learning, PBL. Then, they were having gentle behavior by system and by quality. They emphasized by cooperative working. Then university support education according to directly of the Act of National Education B.E. 2542 by object and continued.

So that, from the derivation important as mention. Researcher interest to do the item for Skill for Social Teaching on 21st Century by Problem-Based Learning of Buddhist Monks in Mahachulalongkornrajavidyalaya University. Then for taking this result to apply for teaching development in school by more effectively.

II. RESEARCH OBJECTIVES

- 1) To study skill for teaching social studies in 21st Century by Problem-Based Learning of Buddhist Monks in Mahachulalongkornrajavidyalaya University.
- 2) To develop guideline for teaching social studies in 21st Century by Problem-Based Learning of Buddhist Monks in Mahachulalongkornrajavidyalaya University.
- 3) To suggestion guideline for teaching social studies in 21st Century by Problem-Based Learning of Buddhist Monks in Mahachulalongkornrajavidyalaya University.

III. RESEARCH METHODS

Research item Skill for Social Teaching on 21st Century by Problem-Based Learning of Buddhist Monks in Mahachulalongkornrajavidyalaya University. There were 80 persons who answer by online then interview 9 persons. Researcher take data to analyze by using finish program to analysis frequency percentage mean by respectively as follow,

Part 1. It was question about independent variable by analysis frequency percentage mean then meaning of percentage.

Part 2. There were questions for measuring level overview about Skill for Social Teaching on 21st Century by Problem-Based Learning of Buddhist Monks in Mahachulalongkornrajavidyalaya University 80 persons who answer by online. It was analysis by frequency percentage then meaning of percentage.

Part 3. It was analyzed for collect interview expert monks according to question as setting.

Studies for Skill for Social Teaching on 21st Century by Problem-Based Learning of Buddhist Monks in Mahachulalongkornrajavidyalaya University. There were classified by individual persons then statistic for research such as Frequency Percent as setting.

A. Research Design

- 1) Theory for teaching social studies in 21st century
 - 2) Problem-Based Learning, PBL
 - 3) Teaching social studies according to all theories
 - 4) Teaching social studies by integration
- According to Scope for key information*

1) The key information using for research as follow, monks who studies for teaching social studies in 21st Century by Problem-Based Learning of Buddhist Monks in Mahachulalongkornrajavidyalaya University as number 80 persons.

2) Persons who were given interview as follow, experts specialist both monks and layman who expert for teaching social studies and principle of ethical accordance with Buddhist by Purposive Selection number 9 persons.

3) The experts from Mahachulalongkornrajavidyalaya University 5 persons. There were for to know by interview about teaching system Buddha's method form for teaching and then apply theory.

4) The experts for teaching social studies moral words education administration and Buddhist Scriptures number 4 persons. There were for to know There were for to know teaching system Buddha's method form for teaching and then apply theory.

B. Research Process

Step 1, to get guideline skill for Social Teaching on 21st Century by Problem-Based Learning of Buddhist Monks in Mahachulalongkornrajavidyalaya University.

Step 2, to get concept about theory Dhamma principle words and for Social Teaching on 21st Century by Problem-Based Learning of Buddhist Monks on Social Teaching.

Step 3, to get integration for Social Teaching on 21st Century by Problem-Based Learning of personal development for social and nation.

Step 4, to bring result from this research present Mahachulalongkornrajavidyalaya University to apply for using teaching in all education institutes.

IV. RESULTS

Part 1. Result from analysis from answers. There were classified by status age level for Dhamma and period for teaching as follow,

1) Classify by status found that, monks were 60 persons conceive as 75 percent and then for senior monks as number 20 persons then conceive as 25 percent.

2) Classify by age found that age level 25-35 have number 23 persons then conceive as 4 percent, next below age level 36 years up number 33 persons, then conceive as 75 percent

conceive as 41 percent, and then the least answer age below 25-year number 4 persons, then conceive as 5 percent.

3) Classify by monk's year found that they were 5-15 years number 70 persons. Then conceive as 87 percent, next below who have year below 5-year number 6 persons, then conceive as 8 percent. Then the least answers who have 25 year up number 4 persons, then conceive as 5 percent,

4) Classify by Dhamma education found that Dhamma level 3rd number 71 persons, then conceive as 89 percent. Then they were 2nd number 9 persons, then conceive as 11 percent.

5) Classify by period of teaching found that teaching 1-5-years number 54 persons, then conceive as 67 percent, next during period for teaching 6-10 years number 20 persons, then conceive as 25 percent. The least answer and teaching 11 years up number 6 persons, then conceive as 8 percent.

V. DISCUSSIONS

The result from data analysis about skills concept for teaching social in 21st centuries by using Problem-Based (PBL) for Learning of Buddhist Monks in Mahachulalongkornrajavidyalaya University number 80 persons. Therefore, who answer by online. It was analysis by frequency percentage then meaning of percentage as follow,

1) Question No, 1, for physical want of learners found that the most answerers have more level number 37 persons. Then conceive as 46.25 percent, next the most level number 34 persons, then conceive as 42.50 percent. The least for middle concept as number 9 persons, then conceive as 11.25 percent.

2) Question No, 2, for wanted in social of learners found that the answerers all the most level as number 58 persons. Then conceive as 72.50 percent. Next there were more level as number 19 persons. Then conceive as 23.75 percent. The least for middle level concept as number 3 persons, then conceive as 3.75 percent.

3) Question No, 3, for wanted mental of learners found that the answerers all the most level as number 50 persons. Then conceive as 62.50 percent. Next there were more level as number 28 persons. Then conceive as 35.00 percent. The least for middle level concept as number 2 persons, then conceive as 2.50 percent.

4) Question No, 4, for wanted wisdom of learners found that the answerers all the most level as number 41 persons. Then conceive as 51.25 percent. Next there were more level as number 35 persons. Then conceive as 43.75 percent. The least for middle level concept as number 4 persons, then conceive as 5.00 percent.

5) Question No, 5, for learners' learners found that the answerers all the most level as number 54 persons. Then conceive as 67.50 percent. Next there were more level as

number 22 persons. Then conceive as 27.50 percent. The least for middle level concept as number 4 persons, then conceive as 5.00 percent.

6) Question No, 6, it has for general information found that the answerers all the most level as number 29 persons. Then conceive as 36.25 percent. Next there were more level as number 25 persons. Then conceive as 31.25 percent. The least for middle level concept as number 6 persons, then conceive as 7.50 percent.

7) Question No, 7, for the appropriate with learners all level found that the answerers all the most level as number 29 persons. Then conceive as 35.00 percent. Next there were more level as number 25 persons. Then conceive as 31.25 percent. The least for middle level concept as number 2 persons, then conceive as 2.50 percent.

8) Question No, 8, it was continuing for practicing found that the answerers all the most level as number 38 persons. Then conceive as 47.50 percent. Next there were more level as number 32 persons. Then conceive as 40.00 percent. The least for middle level concept as number 10 persons, then conceive as 12.50 percent.

9) Question No, 9, it was continuing for practicing as concern by more harmony found that the answerers all the most level as number 43 persons. Then conceive as 53.75 percent. Next there were more level as number 30 persons. Then conceive as 37.50 percent. The least for middle level concept as number 7 persons, then conceive as 8.75 percent.

10) Question No, 10, learners were thinking for advantage found that the answerers all the most level as number 21 persons. Then conceive as 26.25 percent. Next there were more level as number 18 persons. Then conceive as 22.50 percent. The least for middle level concept as number 11 persons, then conceive as 13.75 percent.

11) Question No, 11, Learners were not giving attention for Social Teaching on 21st Century by Problem-Based Learning. It was found that the answerers all the most level as number 25 persons. Then conceive as 31.25 percent. Next there were more level as number 19 persons. Then conceive as 23.75 percent. The least for middle level concept as number 9 persons, then conceive as 11.25 percent.

12) Question No,12, the sequent of skill for teaching have complex and late found that the answerers all most were middle level as number 31 persons. Then conceive as 38.75 percent. Next there were more level as number 27 persons. Then conceive as 33.75 percent. The least for concept level concept as number 5 persons, then conceive as 6.25 percent.

13) Question No,13, many organizations cannot cooperate for Social Teaching on 21st Century by Problem-Based Learning. It was found that the answerers all the most level as number 30 persons. Then conceive as 37.50 percent. Next there were

more level as number 27 persons. Then conceive as 33.75 percent. The least for middle level concept as number 4 persons, then conceive as 5.00 percent. Question No, 6, it has for general information found that the answerers all the most level as number 29 persons. Then conceive as 36.25 percent. Next there were more level as number 25 persons. Then conceive as 31.25 percent. The least for middle level concept as number 6 persons, then conceive as 7.50 percent.

14) Question No,14, skill for Social Teaching on 21st Century by Problem-Based Learning have stable for lives. It was found that the answerers all the most level as number 38 persons. Then conceive as 47.50 percent. Next there were more level as number 31 persons. Then conceive as 38.75 percent. The least for middle level concept as number 2 persons, then conceive as 2.50 percent.

15) Question No,15, there were plans control care to get success found that, the most level as number 42 persons. Then conceive as 52.50 percent. Next there were more level as number 34 persons. Then conceive as 42.50 percent. The least for middle level concept as number 4 persons, then conceive as 5.00 percent.

16) Question No,16, there was applied for life style. It was found that, the most level as number 47 persons. Then conceive as 28.75 percent. Next there were more level as number 23 persons. Then conceive as 42.50 percent. The least for middle level concept as number 10 persons, then conceive as 12.50 percent.

17) Question No,17, administrators have planned control care for Social Teaching on 21st Century by Problem-Based Learning to get success found that, the most level as number 39 persons. Then conceive as 48.75 percent. Next there were more level as number 33 persons. Then conceive as 41.25 percent. The least for middle level concept as number 2 persons, then conceive as 2.50 percent.

18) Question No,18, monks giving for consulting guiding about for Social Teaching on 21st Century by Problem-Based Learning. It was found that the most level as number 28 persons. Then conceive as 35.00 percent. Next there were middle level as number 25 persons. Then conceive as 31.25 percent. The least for middle level concept as number 3 persons, then conceive as 3.75 percent.

19) Question No,19, University have been for information by emphasize for Social Teaching on 21st Century by Problem-Based Learning. It was found that the most level as number 37 persons. Then conceive as 46.25 percent. Next there were middle level as number 25 persons. Then conceive as 16.25 percent. The least for middle level concept as number 3 persons, then conceive as 3.75 percent.

20) Question No,20, University have been supporting personal using their ability for skill in social. It was found that

the most level as number 38 persons. Then conceive as 47.50 percent. Next there were middle level as number 31 persons. Then conceive as 38.75 percent. The least for middle level concept as number 4 persons, then conceive as 5.00 percent.

21) Question No,21, University have been supporting material for using their ability for skill in social. It was found that the most level as number 32 persons. Then conceive as 40.00 percent. Next there were middle level as number 30 persons. Then conceive as 37.50 percent. The least for middle level concept as number 4 persons, then conceive as 5.00 percent.

22) Question No,22, teaching social studies was cared from committee responds official. It was found that the most level as number 35 persons. Then conceive as 43.75 percent. Next there were middle level as number 24 persons. Then conceive as 30.00 percent. The least for middle level concept as number 5 persons, then conceive as 6.25 percent.

23) Question No,23, teaching social studies was concerning with learners' occupation and society. It was found that the most level as number 34 persons. Then conceive as 42.50 percent. Next there were middle level as number 29 persons. Then conceive as 36.50 percent. The least for middle level concept as number 8 persons, then conceive as 10.00 percent.

24) Question No,24, there were suitable with local people. It was found that the most level as number 36 persons. Then conceive as 45.00 percent. Next there were middle level as number 34 persons. Then conceive as 42.50 percent. The least for middle level concept as number 6 persons, then conceive as 7.50 percent.

25) Question No,25, there were abilities to guide about teaching social for learners. It was found that the most level as number 39 persons. Then conceive as 48.75 percent. Next there were middle level as number 31 persons. Then conceive as 38.75 percent. The least for middle level concept as number 4 persons, then conceive as 5.00 percent

VI. RECOMMENDATIONS

A. Recommendations for Practices

1) Teaching social studies for moral teacher must be made understanding for all matters both by policy and administration by radically.

2) Monks who teach social studies in Teaching on 21st Century by Problem-Based Learning (PBL). They should have faithful disciplinary behavior which make learners have interested for learning.

3) Agencies or Organization that respond for original affiliation of monks who teaching social should have been

meeting to know and to solve problems according to original affiliation should be controlled.

B. Recommendations for Future Research

1) Suggestion for next research should be combined new theory and strategy for learning in Teaching on 21st Century by Problem-Based Learning (PBL). There were have both by policy and administration with clearly. Example they should have integration and teaching by Problem-Based Learning (PBL) and (QBL) to accord with government policy of Thailand 4.0 too.

VII. CONCUSSION

The analysis to evaluate data from interview for condition “physical social mental and wisdom” for Social Teaching on 21st Century by Problem-Based Learning (PBL)

Of monks in Mahachulalongkornrajavidyalaya University conclusion as follow,

Advantage, by the physical mean awaken arrangement according to the truth condition as suitable for social widely both news and close condition. For mental it must be accepting news thing about innovation for teaching especially for IT and AI. For wisdom it must be accepted to know new knowledge and can be taking continue by absolutely.

Disadvantage, by the physical mean lost and solving conflict problems for ended. There were cultivate for socials not have any bias participate in social. For the mental mean not have to aggravate and overbear any classes. For wisdom mean not to do any unfair or forced any forfeit cases.

Problem and obstacles, by the physical mean not adjust oneself for absolutely with environment by fact. There were social classes doing by obstacles or accept and admiring to each other by equality. For mental mean accept depth emphasis then ready for face the truth. For wisdom mean entered refined cultivate then choosing motivate for learning.

Approach for skill supporting, by the physical mean ready freedom and doing supporting by equality for all cases. For social mean must be support members to get knowledge by equality for all cases. For mental mean emphasize satisfying for happiness and integrations both internal and external along by pretty good. For wisdom mean support then face the truth by thinking and doing for solving problems by handle for form part method and then by happily.

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The Development of Emotional Intelligence According to Concept of the Four Foundations of Mindfulness

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Abstract— This article needs to reflect the three objectives: studying principles and theories of emotional intelligence, studying the process of developing emotional intelligence according to Buddhist principles, and integrating the four foundations of mindfulness principles of Mahamakut Buddhist University students. Moreover, applying the process of developing emotional intelligence in teaching and learning management. Data synthesis results show that Emotional Intelligence is the process by which humans in that society. Ability to perceive and express emotions appropriate to people, time, place, and society, which will lead to being a good person. be valuable, and can have fun (talent-good-happy) as follows: First positive emotional intelligence is the ability to control one's own emotions and inner needs. Always empathizing with others and have social responsibility as a whole. Second, the emotional quotient is the ability to know oneself. Self-understanding motivation can make effective decisions, problem-solving, and expression, including having a good relationship with others. Third, the emotional quotient is the ability to lead a happy life. Guidelines and methods for promoting the development of emotional intelligence according to Buddhist principles. We can act or apply the principles in many ways, such as promoting emotional intelligence according to the noble eightfold path: 1) right view 2) right thought 3) right speech 4) right action 5) right livelihoods 6) right effort 7) right mindfulness and 8) right concentration or the promotion of emotional intelligence according to the threefold principles, namely precepts, concentration, wisdom, etc. In addition, it can be said that Trisikha means to train the mind in the subject which we should study in which we can integrate the principle of Tri-sikha with the promotion of emotional intelligence

Index Terms— *Development, Emotional Intelligence, Four Foundations of Mindfulness*

I. INTRODUCTION

The situation in the world today is changing into a new social era known as "Knowledge-based world or knowledge base economy society" where people of all ages, ages and places of the world can communicate with each other all over the world with the advancement of technology and communication as the key [1, p. 19] The globalization is a key factor contributing to rapid and radical change in all areas of society Thailand, as a member of the global society, inevitably has to deal with the effects of globalization that include cooperation, conflict and competition. The indicators of human survival, therefore, depend on the ability and quality of the nation and its population. one of the country's salvations is human resource development, using education as a vital tool for developing people to cope with the change. This reflects the need for us to study, always seek knowledge, research, and develop ourselves. Being a perfect human consists of factors, one of which is educational factors because education is the most important factor in human development to have quality

by promoting knowledge, ideas, skills, attitudes, knowing oneself, knowing life, and understanding society. Ability to adapt to keep pace with current and future changes. It is an age of knowledge-seeking and knowledge-based to increase the competitiveness and sustainability of each country. Therefore, the educational management of different countries worldwide must be adjusted all the time to build a world society into a learning society.

The main goal of education is to develop the human resources of society into a person of quality that society wishes, and education must create for him to be successful in his studies. Career success and life success. In the old days, the education system saw that a successful person had to be smart. In the past, we would focus on intelligence, with the human intelligence index of IQ. (intelligence quotient) Therefore, the educational institution greatly focuses on organizing courses and examinations to develop children's intelligence greatly. Children have to study hard because of the highly competitive academic competition. Only the best will have the opportunity to choose from prestigious faculties and disciplines. In the hope of success and progress in the future, causing him to becomes a depressed child, has high stress more selfish, and

often cannot get along with anyone. When going to work, they are often less successful. Therefore, we cannot guarantee that a person with a brilliant reading mind, a high IQ, studies well, and success in their studies can pass a qualifying test for a job in a good position. Moreover, will always be successful because research has shown that this high IQ. The group often has emotional and interpersonal problems. Therefore, psychologists are interested in studying the factors that lead to a person's success in life higher than IQ, which has been found that human success does not depend on only one cognitive ability. Nevertheless, it also depends on his emotional ability (EQ). [2, pp. 38-42]

In daily life and work, we will inevitably face the stress and pressure of the environment around us, so we should have the skills to deal with our emotions. We are also known as EQ (emotional quotient), which has become an essential feature in today's work. because it will help us to work professionally and stable in work. Emotional intelligence is the ability to manage one's own emotions. and perceive other people's emotions because the emotional expression affects others who have to work together. This will allow us to work happily with others. It can be called social intelligence when approaching others. And we need to have the ability to distinguish emotionally. To manage thoughts and actions appropriately. Therefore, EQ is essential for daily work and life use. It is a helper that will help us cope and face problems better. Even if unable to control the outside situation But we can prevent ourselves it also helps to build a positive image as a leader or employee. Ready to grow in the career that EQ is required to increase work efficiency.

Emotional intelligence is the ability to control emotions. Stable heart, human optimism, empathy, know how to please him and pay attention to self-determination, reason, self-control, and the ability to recognize other people's needs and recognize social etiquette. In other words, human life is carried out under the influence of emotions and feelings. Because emotions can drive various behaviors If a person is highly developed emotionally or is highly emotionally intelligent, that person has an appropriate emotional expression that will make himself and others happy. [3, p. 36] and when considering Thai education management, it can be seen that it emphasizes emotional or mental state. As can be seen from the National Education Act 1999 stating that "education management must be to develop Thai people to be human beings, body, mind, intelligence, knowledge, and virtue. There is an ethics and culture of life. Able to live happily with others and also focus on producing students to have characteristics in addition to being a talent a good person must also be a happy person, that is, happiness in both body and mind". It can be concluded that emotional intelligence is

crucial because it is the driving force for human expressions of behavior that affect their lifestyle, which can lead to success in life. Therefore, we need to be knowledgeable and intelligent. Emotional is essential and can control unwanted emotions. It is accepted that emotional intelligence can be enhanced.

II. THE MEANING AND CONCEPT OF EMOTIONAL INTELLIGENCE

Emotional intelligence is a unique ability to perceive, assess, and control one's own or others' emotions. Emotional ability to help them lead a happy and creative life. "intelligence is the main factor that makes people successful. have a good quality of life and happiness". But, later psychologists did not think that success in life would depend solely on cognitive abilities. Because at that time there was not enough research data, the concept was therefore unfortunately ignored. Until 1990, American psychologists Peter Salovey and John D. Mayer brought this idea to another study. It describes emotional intelligence in the meaning form of social intelligence that can perceive one's own emotions and feelings and others. And able to distinguish different emotions and using this information to guide thoughts and actions. Later, Daniel Goleman, a psychologist at Harvard University has begun to expand this concept seriously. He wrote "Emotional Intelligence." after Daniel Goleman's book came to the public. People are becoming more interested in emotional intelligence as well as in recent studies, there have been several studies showing the importance of emotional intelligence. It has been recognized as an integral part of success and happiness for life. [4, pp. 1-2]

The concepts of emotional Intelligence Daniel Goleman (1997) is considered the first psychologist to focus on human emotional intelligence. He communicated by writing the book "Emotional Intelligence: Why it can matter than. IQ has led many people to explore his ideas and theories over a later period extensively. In Thailand, scholars have translated and communicated the meaning of the word "emotional intelligence" differently in the following points.

P.A. Payutto (2003) has mentioned that emotional intelligence is that emotion itself is a state of mind. and the mental state is linked to behavior as a channel to expand boundaries and liberate with intelligence to communicate effectively with physical and verbal behavior, it can be counted as the relationship system of behavior, mind and intelligence to come together as a component. properly, it will benefit both oneself and others, as well as for the whole society and environment. [5, pp. 25-28]

Th. Eiemanan (2006) said that today scholars have begun to agree that other than intellectual Intelligence or Intelligence,

but also intelligence in other areas. Having a high level of intellect alone is not enough to be successful in life and work. Therefore, scholars began to study emotional Intelligence or emotional Intelligence. This helps us understand the emotional state behind human thoughts and behaviors. For administrators, having a good understanding of emotions and managing them appropriately will significantly benefit the organization. The administration will be effective and achieve the goals. executives should study emotional intelligence and develop themselves properly. [6, p. 3]

Daniel Goleman (1998) explains that emotional intelligence is a competence that differs from intelligence measured by IQ. Intelligence is the function of the cerebral cortex, the upper part of the brain. But, emotion is the function of the lower part of the cerebral cortex. Emotional intelligence is not determined by genetics and is not as developed as in early childhood as IQ, but learning and continuing. He has entered working age. emotional intelligence is a necessity that a person should have or develop more for happiness in life. [7, pp. 54-55]

The Division of Mental Health Promotion and Development (2000) describes the components of emotional Intelligence in Thai society context, developed from Daniel Goleman's concept of emotional intelligence, divided into three areas: smart, goodness, happiness) which is determined by nine sub-factors as follows: [8, pp. 77-78]

1. The smart refers to the ability to control one's own emotions and desires. To recognize others and have responsibility to the public, consisting of as follows:

1.1 Controlling one's own emotions and needs Perception of one's own emotions and needs controlling your emotions and needs properly.

1.2 Empathy caring for others understanding and accepting others, showing compassion appropriately

1.3 Responsibility giving and being responsible and forgiving others for the common good.

2. Goodness refers to the ability to know oneself. motivation the ability to make effective decisions, problem solving and self-expression including having a good relationship with others, which consists of as follows:

2.1 Self-awareness and self-motivation know your potential able to build self-morale and persistence towards the goals that they set.

2.2 Decision making and problem solving process Perception and understanding of the problem as well as having flexible and appropriate procedures for solving problems.

2.3 Having a good relationship with others appropriate social expression or expressing constructive conflicting opinions.

3. Happiness refers to the ability to lead a happy life as follows:

3.1 Self-esteem and self-confidence.

3.2 Satisfaction in life optimism having a sense of humor and satisfaction with what they have.

3.3 Being happy mentally or having activities that promote happiness and knowing how to relax and have peace of mind. Nowadays, Thai society has increasingly focused on emotional intelligence. With an important idea that "If emotional intelligence is promoted along with the promotion of intelligence, it will make a person successful and happy." emotional intelligence should consist of three characteristics: as follows: [9, pp. 126-127]

The First characteristic is to have a good understanding of yourself. Being aware of your emotions, Know your strengths and weaknesses, and control and manage your feelings. You were having a plan or goal for both short and long-term life.

The Second characteristic is understanding of others. Able to please him and pay attention to us and able to express emotions to others appropriately.

The third characteristic is the ability to resolve problems or conflicts. And able to remove the stress that hinders creativity as well.

In conclusion, Emotional Intelligence plays a vital role in how we live and work. Moreover, emotional intelligence differs from cognitive ability. That is, emotional intelligence can develop. Even though we have entered a working age, emotional intelligence can also result in people being more productive. Including helping to build good relationships with colleagues as well, Emotional Intelligence is something that can be developed. It depends on your willingness to learn and develop yourself. Here are some guidelines for developing emotional intelligence as follows:

1. Knowing your own emotions and developing that we have the same emotional self-esteem. Can be done by practicing mindfulness to be aware of our own emotions and actions, can tell ourselves how we feel, be honest with our feelings, able to analyze and classify situations for reasons, can accept our shortcomings, and ready to improve, including being careful in expressing their own emotions.

2. Able to manage their own emotions. Once we are aware of our emotions, we need to deal with our own negative emotions, such as when destructive emotions arise. Disappointment or regret Face those feelings and be able to handle them and bring emotions back to normal as quickly as possible, not obsessing over those negative emotions.

3. The optimistic view of the world can be achieved by reducing our self-obsession. Know to consider things around him, whether family member environmental colleagues appreciate the good things they see. try to organize your thoughts and your mind.

4. Building self-confidence must be known to encourage yourself. Inspire yourself to accomplish your goals in life. Know your merits, have confidence in oneself, dare to make decisions, dare to initiate new things, develop one's abilities, and help us succeed in our work.

5. To understand the feelings and needs, we must learn to understand the emotions, feelings, and conditions. These things will help us build relationships with those around us and have good interpersonal skills and a good ability to deal with interpersonal conflicts.

We will be successful in life and happy in life and work, so emotional intelligence is essential. This is because it helps us to understand our feelings and the feelings of others, to know their strengths and weaknesses, to control our emotional expression, to be optimistic, to be able to resolve conflicts appropriately, and more importantly, intelligence. Emotion can help us achieve success in our work, family, and personal life.

III. FACTORS AFFECTING EMOTIONAL INTELLIGENCE

From reviews of documents and research, the author found that the following factors affect emotional intelligence.

1. The inherent differences between males and females give rise to different personalities and shapes. This is the difference in physiology and environmental psychology in society, expecting females and males to play different gender roles, thus making females and males different personality traits—emotional intelligence between women and males. There are differences, with females being more aware of their emotional states than males. They show compassion and help and support. Moreover, show kindness towards each other.

2. Emotional Intelligence is strongly related to individual personality traits. The personality component was positively correlated with emotional intelligence. It consists of courage, strict adherence to good-evil, immovable. And enthusiasm will be a person with high emotional intelligence. Therefore, personality has a direct influence on emotional intelligence.

3. The importance of the role in raising the level of emotional intelligence of children is. Parents need to be very patient, calm, and not obstructing the child's negative expressions for the child to show. Parents can guide and define appropriate behavioral boundaries, as a result of which children are self-aware, respectful of their feelings. Be independent and have a high self-esteem. Able to deal with emotions and solve problems have good learning, can build relationships and make good friends with others.

4. To develop emotional intelligence, parents or must be able to suggest appropriate behavior. When seeing children express negative emotions, parents are required to give

advice, explain, give freedom, encourage, exercise responsibility for their children so that they can build up their emotional intelligence in their children. and open, honest communication, avoiding mental and emotional harm, will improve your emotional intelligence.

It can be concluded that gender differences, individual personality, parenting processes. and the expressive behaviors of parents have a positive relationship in encouraging children too. There is an increased development of emotional intelligence.

IV. BASIC CONCEPT OF SELF-DEVELOPMENT

Personal development is the self-improvement of one's potential, physically, mentally, emotionally, and socially to become an influential member of society. Benefit others as well as for his own peaceful life. Self-development to produce productive and enriching one's life takes many approaches and ideas. which summarizes the principles; the key in 3 ways are medical self-development. Psychological self-development and Buddhist self-development as follows:

1. Principles of medical is self-development emphasize the importance of maintaining a balanced internal environment. or changes appropriately to various functions of the body because the body is composed of various organ systems coordinated if all systems usually work, it is a growing state of and lead the expected life of a person. Nevertheless, if any of the systems cannot function properly, indeed, it is an obstacle to life. Growth and development can lead to problems with learning, thinking processes, emotions, work, and behavior.

2. The principles of psychological self-development and the concept of psychology have many groups. However, the concept of behaviorism and cognitive psychology describes the principles that are very useful for self-development as follows:

2.1 Principles of behavioral psychology believe that human behavior, whatever the behavior in question or behaviors that want to develop from learning, results from human interaction with the environment. Unusual behavior of the person is a behavior that results from improper learning. If it is to be improved or corrected, it can be done by giving new learning. Self-development, it is necessary to understand the essential principles of self-discipline learning in order to adjust behavior.

2.2 Principles of cognitive psychology there is a belief that human behavior does not only occur and change due to environmental factors. Instead, it involves 3 crucial factors: (1) personal factors: intelligence, and biological characteristics. And other processes within the body (2) environmental factors and (3) behavioral factors, including actions. These three factors serve to determine each other, but

they are not meant to influence each other equally. Moreover, may not happen at the same time; some factors may have more influence, which may require a period consisting of in determining the effect on other factors.

3. Self-development in the Buddhist way is the learning and practice to achieve the fit or the equilibrium of life. There is a harmonious relationship between the life of the person and the environment and pursue self-happiness. Be self-aware, To understand oneself rather than relying on objects It is a guideline for sustainable livelihood development. The principles of self-development according to the Buddhist concept consisted of 3 main points of self-command, virtue, and prayer as follows:

3.1 Self-command is to know how to restrain or control the mind in charity so that he does not fall into desires and knowing, practicing, and practicing to keep one's mind away from passion, including making that good to remain or grow more.

3.2 Virtue is the study of enlightenment. Know the benefits, look at everything as learning to improve and improve yourself. It is a process of self-training in life. There are three things which are (1) morality meaning the practice of physical integrity, verbal and occupational to maintain oneself in a personable society, be a good person of society, be a disciplined person, performs duties according to the norms of society, able to live well in life, with a responsible social responsibility. (2) concentration means mental training. build quality and mental performance to be strong, stable, good self-control, concentrate, have a calm, pure mind without any gloom In a state of readiness to use wisdom profoundly and according to the truth. (3) wisdom means the training of wisdom to create knowledge and understanding of all things. Be enlightened by reality, having a free mind and pure wisdom.

3.3 Pray this word corresponds to the word development, which consists of body, prayer, sacrament, and wisdom. Comparable to physical development develop social, emotional, and intellectual development.

V. SELF-DEVELOPMENT ACCORDING TO THE PRINCIPLES OF FOUR FOUNDATIONS OF MINDFULNESS

Implementation of the principle of four foundations of mindfulness is the way of living in achieving the cessation of suffering. The Lord Buddha called "The middle way" when called following Buddhism. It is called the "Noble Path," which is the way of success. The four foundations of mindfulness are the location of mindfulness, the practice to use mindfulness for the best effect, the development of intelligence with the dominant consciousness, the presence of

consciousness, and the directing of the mind to keep up with the emotions involved in perception. acknowledge by helping wisdom to follow and be aware of seeing things The four foundation of mindfulness has a brief of the following: [10, p. 2-4]

1. Kayanupassanasatipatthana is to consider by looking and knowing the body to see what happened and the deterioration of the body and withholding adherence with self and other people's desires. The consciousness that the body exists in order to realize the truth. Not for holding on, practitioners do not cling to the body in any way. Not all things in the world should be attached to it. When considering the truth like this, lust and wrong opinion will fade away. Clear by not holding on to anything with passion.

2. Wedhthanupassanasatipatthana is the consciousness of various symptoms, including happiness and suffering, an abstract one. They do not look at their bodies as people, animals, and them, but they are separated into abstractions that rely on several reasons, thus forming a cycle. And having an attitude that everything is not honest, suffering, and soulless.

3. Jiththanupassanasatipatthana is consciousness, control of the mind to be calm. He does not see his mind as human beings. He is not seeing that we are thinking, we are angry, or we are absent. But, looking them apart to be just an abstraction that relies on many reasons, thus forming a cycle. Moreover, having an attitude that everything is not honest, suffering, and soulless.

4. Thammanupassanasatipatthana is consciousness, not forgetting that common trait are caused by many factors. By not being attached to our human being but instead looking out of it as an abstraction that relies on many causes, it takes place in a cycle. And having an attitude that everything is not honest, suffering, and soulless.

VI. CONCLUSION

Self-improvement is one of the important things that need to be developed all the time. The basic self-development principles of Buddhism are essential principles that can be applied immediately. This will allow us to develop ourselves all the time and not fall into the pitfalls of life. There are four things:

1. The principle of action is to aim to accomplish with persistence. Significantly his persistence, people must have perseverance. If there is no persistence, it cannot be stepped in the process of doing it. Buddhism is a religion of karma and persistence. To hope for his actions with one's strength do not let the hope of the results of prayer and prayer. Lie down and wait for the results of the fortune. from getting rich, shortcuts, fraud, gambling, or gambling.

2. The principle of education and development is regarded as a duty with consciousness to train oneself to progress further in various charities. That will give life and society a better life, called the "Tri-Sikkha principle." human is a noble animal through training. Therefore, to move towards goodness, that perfect virtue, life must develop threefold to move forward. Life will be better. Must learn and practice Does not stop in the same place.

3. The principles of carelessness in doing anything with persistence. Furthermore, in order to develop oneself, one must not be careless. It must be seen to be aware of the importance of time and change that things around us and our lives are inevitable as we live this life. Everything changed all the time. We cannot be silent. There is something that should be done, must be done quickly. Must hurry and do it recklessly.

4. The principle of self-reliance, which gives freedom this principle must be developed yourself. When we do it ourselves, we can be self-reliant. It is important not to speak of self-reliance, which is just the beginning. However, I must move on to practice and practice. Incidentally, the teachings of the Buddha explain that "Try to rely on yourself by making yourself depend on this freedom. not just not having to rely on being direct with other people only it also means not being too dependent on the material." So one significant freedom means being able to have a greater self-happiness. by adjusting to be following the principles of nature as much as possible

For the point of guidelines and methods for promoting the development of emotional intelligence according to Buddhist principles. We can act or apply the principles in some ways, such as promoting emotional intelligence according to the noble eightfold path: 1) right view 2) right thought 3) right speech 4) right action 5) right livelihoods 6) right effort 7) right mindfulness and 8) right concentration or the promotion of emotional intelligence according to the threefold principles, namely precepts, concentration, wisdom, etc. In addition, it can be said that Trisikha means to train the mind in the subject which we should study in which we can integrate the principle of the Tri-sikha with the promotion of emotional intelligence.

In addition, to enable education to develop human resources to be qualified persons as the society wishes, i.e., good and happy people, able to work with others. The educational management process had to modify the teaching and learning method instead of improving the IQ in only one area. There is a need for EQ development, which the following methods can achieve.

1. To training children to recognize their true value. Keep yourself optimistic. Feel good about life, can appreciate him-self practice exploring your emotions. Finding the cause

of the mood, understand oneself, and understand the feelings of others.

2. To training to know how to distinguish their good emotions. Which mood is terrible? If you cannot control your own emotions, how will the results affect me and others? How to use communication to make others understand themselves and good results for working together and expressing appropriately for people, places, times, and situations. Able to be patient and show appropriate behavior.

3. When practicing the cognitive abilities of others, you can perceive others' emotions and feelings until they develop empathy, understand others, and practice observing and monitoring emotions.

4. Practicing self-motivation, both achievement motive, and affiliation motive.

5. Practicing interpersonal relations, showing generosity to others, appreciate oneself, and see the value of others. Practice respecting others with sincerity. Show like Admire and encourage each other

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Development of Effective Student Affairs Administration Based on Sangahavathu IV Principles for Schools under Office of Primary Education Service Area

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Abstract— The main objectives of this research were 1) to develop student activity management to be effective based on Sangahavathu IV principles for schools under Office of Primary Education Service Area, and 2) to propose development of effective student affairs administration based on Sangahavathu IV Principles for schools under Office of Primary Education Service Area. Research instruments were a questionnaire distributed to 400 school teachers under the Office of Primary Education Service Area, interview form by interviewing 24 key informants, 24 school administrators and questionnaires for group discussion with 10 experts. Quantitative data were analyzed by using percentage, frequency, mean, standard deviation whereas qualitative data was analyzed by using content analysis. Results indicated that student affairs administration to be effective based on Sangahavathu IV principles for schools under Office of Primary Education Service Area has developed in 4 areas which consisted of 1) Policy formulation and guidelines. It sets the rules and criteria for organizing the student development activities of schools. 2) Supervision and follow up is a follow-up of the project plan calendar project of the school student development activities. 3) Support and encouragement is the recruitment, support, resources involved in organizing student development activities as well as giving advice to personnel involved in organizing student development activities of schools. 4) Assessment and reporting is to acknowledge the evaluation results. For Sangahavathu IV principles, it is justified by each other's will, friendship, generosity, support, cohesion include: 1) alms, generosity, sacrifice, help, and sharing of the development of student affairs administration to be effective based on Sangahavathu IV principles for schools. 2) Piyawaja is an utterance love each other, polite, sweet, pleasant, and pleasant listening of the development of effective student affairs administration based on Sangahavathu IV for schools. 3) Attributes are beneficial help provided with the strength of the development of student affairs administration to be effective according to Sangahavathu IV principles for schools. 4) Samanattata is to heal treat all people equally of the development of student affairs administration to be effective according to Sangahavathu IV for schools. S S S Model was proposed for the development of effective student affairs administration based on Sangahavathu IV principles for schools under the Office of Primary Education Service Area. There should be three important aspects which are: 1) Student Affairs Administration, Student activity management is a systematic process or activity plan with a supervisor responsible for each step. 2. Sangahavathu IV, is fair that is an anchor to each other. There are 4 aspects of relationship, benevolence, generosity and coordination in managing student activities, which are (1) giving, (2) polite speech, (3) beneficial behavior, and (4) effective student affairs administration is place oneself appropriately. 3. School, the school by improving effective student affairs administration based on Sangahavathu IV should be participation between schools, namely administrators, teachers and school committee members, parents, students, communities.

Index Terms— Student Affairs Administration, Sangahavathu, School Administration

I. INTRODUCTION

At present, teaching and learning focuses on students to organize learning activities according to the core curriculum of Basic Education B.E. 2551 (Revised 2017), which aims to develop all learners who are the power of the nation to be human beings with balance both physically, knowledge,

morality, and consciousness of being a Thai citizen and a world citizen adhering to the democratic regime of government with the King as Head of State have basic knowledge and skills. It is also including the attitudes necessary to study career and lifelong education by focusing on the learners, based on the belief that everyone can learn and develop themselves to their full potential. An important development is a balanced development that is holistic in all

aspects for a complete human being that have an ethical basis being a good person physically, intellectually, emotionally and socially. All learners at the basic education level must build a body of knowledge skills or learning processes and desirable attributes. Therefore, it is necessary to learn 8 learning subject groups, namely Thai language, mathematics, science, social studies, religion and culture, health education and physical education, art, occupation, and technology, foreign language and student development activities[1].

The Core Curriculum of Basic Education 2008 defines learner development activities as an important element in learner development as well as learning the subject matter that is the integration of knowledge skills and attitudes arising from learning in all 8 learning subject groups and experiences of learners to practice to enhance key competencies and desirable characteristics. This is set as an important criterion for passing grades and completing basic education courses. Educational institutions must provide learner development activities in every level of educational institution curriculum structure and arrange for learners to practice student development activities seriously focus on developing your abilities according to your own potential. Emphasis is placed on participating and doing appropriate activities with others happily. The learners choose according to their abilities, interests and real aptitudes, not activities organized by teachers in learning various subjects by focusing on working in groups to cultivate good habits in society. Students have to do activities on their own with a comprehensive group starting from education, analysis, planning, implementation of the plan evaluation and improvement. Students must do activities to develop learners to pass the assessment and pass the exam according to the specified criteria. Therefore, each grade level will be graduated [2].

Educational institutions play an important role in promoting, supporting and pushing for effective student development activities. The educational institutions must operate with goals. There is a suitable method by organizing various activities to support and promote learning according to the learning subject group that satisfies interest natural aptitude and ability student needs focus on organizing activities to instill and create awareness of social contributions and organize various types of service activities. Practicing work that is beneficial to one's self and participation including that the educational establishment will arrange any student development activities. School must hold attention aptitude and the needs of the students are important. Therefore, it is consistent with the intention of the course. Educational institutions should give students the opportunity to propose activities to develop learners on their own. For students in the upper level who have knowledge, abilities and are ready to

take responsibility for their activities and gives students the opportunity to choose activities that they are good at, like or interested in that students still lack knowledge ability and inability to be responsible for any activities guidelines for organizing activities for developing learners in educational institutions [3].

Therefore, organizing activities is part of education. Schools must organize activities to help students show their interest. true natural aptitude and in accordance with the Education Act 2019, Section 22 that educational management must adhere to the principle that all learners have the ability to learn and develop themselves and are regarded as the most important learners. The educational management process must encourage learners to develop naturally and to their full potential. Article 24, item 3 states that the organization of activities for learners to learn from real experiences. [4] Practice to be able to think, act, love to read, and continually want to know. The activities will help train students to know their duties. responsibility and sacrifice for the public training to be a good leader and follower under a democratic system. Activities are experienced student with difference in order to create good intentions and develop a desirable personality, which, in addition to the students passing the exam in the required course and elective courses as prescribed learners must participate in the activities according to the rules of the Ministry of Education on completion of both lower and upper secondary courses.

It can be seen that in organizing such student activities must be based on students and activities are organized according to their interests student aptitude allowing students to do activities on their own and help each other to solve problems that arise while working engage. All students are knowledgeable pursuing to study in accordance with the National Education Act B.E.2542, organize activities according to your interests the aptitude of the learners. Therefore, it is not the responsibility of the school alone, but must jointly manage education with all stakeholders in educational management, and together organizing student activities in various fields with the cooperation of homes, temples and schools should be another way to make education management more effective. It must adhere to the Buddhist principles that are related to coexistence in society, that is, the Sangahavathva IV principles that will enable work to achieve the goals that have been set, consisting of 1) giving, 2) piyaya, speaking politely, 3) Atthachariya, behaves beneficially, and 4) samanattata is appropriately self-disciplined [5].

From the above context, student activities as part of student affairs are no less important than academic work including doing student activities in the old ways that do not see the importance of the various educational parts that are involved

will not achieve the goals of educational administration. Therefore, the community should be given more opportunities to participate and play a role in educational management and work to achieve results as set goals must rely on Buddhist principles, that is, the 4 Sangahavathu principles. Therefore, the researcher is interested in studying the development of student activity management to be effective according to the Sangahāha principle. Object 4 for schools under the Primary Education Service Area Office Based on the opinions of the parents, the students will be able to reflect on the management of student activities in the school by using the Sangahavathu IV as an administrative approach, which is called the management of student activities with participation in accordance with the Sangahavathu IV principle.

II. OBJECTIVES

The main objectives of this research were 1) to develop student activity management to be effective based on Sangahavathu IV principles for schools under Office of Primary Education Service Area, and 2) to propose development of effective student affairs administration based on Sangahavathu IV Principles for schools under Office of Primary Education Service Area.

III. RESEARCH METHODS

This study used the survey research model along with the in-depth interview and focus group discussion which is a mixed methods research between quantitative research and qualitative research by analyzing data from documents, textbooks, data, statistics, and research reports. Reports of various departments academic articles, dissertations, as well as related research both at home and abroad. For in-depth interview, an interview form created by the researcher was used to study the opinions of the educational institute administrators who were the target groups as a case study by distributing 400 questionnaires to teachers in schools under the Primary Educational Service Area Office. Interview form was used for interviewing key informants of 20 school administrators, and questionnaires for focus group discussions with 11 experts. The researcher collected the data and analyzed the data, consisting of 1) document analysis using content analysis, 2) data were analyzed by using statistics, percentages, frequency, mean, standard deviation. 3) Data from interview was analyzed by using content analysis and summarizing the results according to the interview form, and 4) data from focus group discussion was analyzed by using content analysis.

IV. RESEARCH RESULTS

Results of the development of student activity management to be effective based on Sangahavathu IV principles for schools under Office of Primary Education Service Area were shown in 4 aspects as follows: 1) policy formulation and guidelines, 2) monitoring, 3) promotion, and support, and 4) assessment and reporting. In overall, it was at a high level, while each aspect was at a high level in all aspects.

A. The results of a study on the development of effective student activity management according to Sangahavathu 4 for schools under the Office of Primary Education Service Areas

The development of effective student activity management according to the Sangahavathu 4 for schools under the Office of Primary Education Service Areas can be summarized as follows:

1. The development of effective student activity management for schools under the Primary Education Service Area Office.

1.1 In terms of policy and practice, it was found that the school had guidelines on student activities consistent with the school's policy. There are various plans or projects for the development of learners in accordance with the policy. Organize student activities by providing opportunities for students to learn from other learning sources. Organize student activities for students to do on their own. Provide opportunities for groups of learners to offer student activities according to their needs. Define extra-curricular activities to enable students to develop to their full potential. There are regular meetings to discuss and listen to teachers' opinions on student activity management. Roles and duties in student activities management are appropriately defined.

1.2 Follow up student activity management During the operation as system and continuous. There is a clear supervision and monitoring plan for the management of activities. Consultation and suggestions were given to supervisors in making plans and student activity projects. Experts were invited or qualified to give advice on how to organize student activities problems arising from student activities are regularly monitored and inquired. A meeting was held to give teachers an opportunity to present problems in the management of student activities. There are regulations in the management of student activities in order to be in the same direction for monitoring and evaluation.

1.3 Support and encouragement, it was found that the school provided adequate budget support for student activities management, encouraging teachers to receive seminars, training, and education, visit the event to promote the development of teachers in the management of student activities continuously. Students are encouraged as creative management of student activities, and providing support and

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assistance with materials and equipment related to student activity management. There is production and preparation/providing media for student activities administration to teach students. There are activities, competitions, contests about the management of student activities, and provide opportunities for educational institutions committees, parents, communities, public and private sectors to participate in the management of student activities of educational institutions. Teaching about student activity management is to be used in the development of educational institutions. There are measurements and assessments of school management and teaching about student activities management in educational institutions according to real conditions continuously through various methods. There is an evaluation of the performance of student activities management in the school and reports to all parties concerned that have been informed and pay attention to the management of student activities. Work is always being improved. New sciences are being studied to improve student activity management to be effective. The student's work process in each activity is continuously assessed. The results of student activity assessments are publicly available or in the school's annual report. In addition to evaluating each group of student activities, schools also have an overall assessment of student activities.

2. Developing effective management of student activities according to Sangahavatthu IV for schools under the Office of the under the Office of Primary Education Service Areas consisted of below aspects.

2.1 Giving, it was found that the school provided sufficient support for the budget for managing student activities, encouraging teachers to receive seminars, training and study visits to promote the development of teachers in the management of student activities continuously. Students were given creativity in the management of student activities, provide support and assistance with materials and equipment related to student activity management, encourage the production and preparation/procurement of media related to student activity management to teach students support to organize activities, competitions, contests about the management of student activities. It also provided opportunities for educational institutions committees, parents, communities, public and private sectors to participate in the administration of student activities of educational institutions.

2.2 Piyavaca (spoken polite speech) found that administrators spoke to give opportunities to teachers in schools, participate in the administration of student activities and willing to listen to the problem wholeheartedly behave without giving up on hardships. In what is required by activity management regulations without repeating or complaining to others. It has

managed student activities with fairness willing to listen to the problems of the colleagues in the school by using polite words perform duties with dedication ability despite problems and limitations of educational institutions in managing student activities and use a heartfelt voice Even the administration of student activities. There will be obstacles executives do not give up their efforts to complete their work. He never said a word that made him feel negative, and always listen to problems from students, teachers, and local people in order to use the information for the management of student activities. However, it always respond with politeness student activities management that doesn't appear to be good will always improve and improve in the next operation without being discouraged and not saying bad words or that will deteriorate the school. There is a plan to manage student activities even if it takes a long time will try to succeed he continued to use good words.

2.3. Attachariya (beneficial behavior) found that administrators created awareness of social responsibility of teachers and students. The school holds a meeting to discuss and listen to teachers' opinions on managing student activities. Regularly arrange is to bring the results of management evaluations. Teaching about student activity management to be used in the development of educational institutions to provide measurement and evaluation of learning management teaching about student activities management in educational institutions according to the actual situation continuously by means. There is a variety of supervision or monitoring and evaluating student activity management during the operation as system and continuous. There is an evaluation of the performance of student activities management in the school and reports to all parties concerned have been informed pay attention to the management of student activities work is always being improved. There is a study of new science to be used to improve student activity management to be effective.

2.4 Samanattata (appropriate self positioning) found that tasks were assigned according to their duties responsibility and the ability of teachers and personnel in schools administrators work in the management of student activities with diligence, perseverance, and consistent practice that have a policy objectives and goals in the management of student activities. It also has a passion for managing student activities and the duties performed until able to develop the responsible work to be effective willing to work in the management of student activities and desires to work successfully has managed student activities with honesty transparency can be checked punctuality work with perseverance aim for the success of student activity management. There is a management of student activities by

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focusing on common interests not for personal benefit or benefits from the administration of student activities.

The presentation of the development of effective student affairs administration based on Sangahavatthu IV Principles for Schools under the Office of Primary Education Service Areas (S S S Model) should increase the focus on three key areas: 1. Student Affairs Administration, student activity management is a process or plan of organizing activities in a systematic manner with caretakers responsible for each step Implementation of plans and projects and assessment at the end of the process consists of 4 aspects: (1) policy formulation and guidelines, (2) supervision, (3) support, (4) assessment and report. 2. Sangahavatthu IV is the Dharma that binds each other's kindness. There are 4 aspects of effective management of student activities, namely (1) alms (giving), (2) piyavaca (spoken speech), (3) atthachariya (beneficial behavior), (4) Samanattata (Possessing oneself appropriately). 3. School Schools by developing effective management of student activities according to Sangahavatthu IV for schools under the Primary Education Service Area Office. There should be participation among schools, i.e. administrators, teachers and school committees, parents, students, and communities.

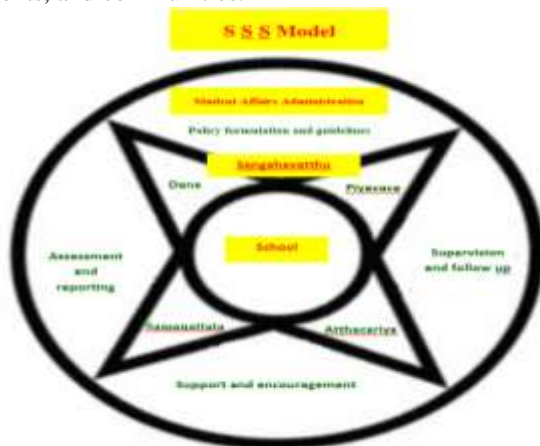


Fig 1: Model of Development of Effective Student Affairs Administration based on Sangahavatthu IV Principles for Schools

V. DISCUSSIONS

Opinions on the management of student activities in schools under the Office of Elementary Education Service Areas in 4 aspects as follows: 1) policy and guideline formulation, 2) monitoring, 3) promotion and support, 4) assessment and reporting by the overall is at a high level. This is because the school's student activity management has good school management effective very well. This is consistent with the research of Songpol Charoenkham [6] "Model of excellence of schools affiliated with Bangkok Metropolis". The results of

the research revealed that 1. The factors of excellence of schools affiliated with Bangkok consisted of 5 factors: 1) school administration, 2) school director, 3) administrative structure of the school, 4) students, parents, community and society, and 5) teachers and educational personnel. 2. Conditions of excellence of schools affiliated with Bangkok Metropolis according to the criteria of the National Institute of Standards and technology as a whole, at a high level and the results of the corroborative factor analysis (Confirmatory Factor Model: CFM) is consistent with the empirical data. 3. The model of excellence of schools affiliated with Bangkok consists of 3 factors: school administration, School director, students, parents, community and society. 4. Examination of the model of excellence of schools affiliated with Bangkok Metropolis, the model of excellence of schools affiliated with Bangkok, all three factors were correct, appropriate, feasible and could be used in accordance with the theoretical framework. This research also consistent with the research results of Suphalak Setthapanich [7] researched on "Development of an administrative system that focuses on excellence for private educational institutions" aims to develop an administrative system that focuses on excellence of private schools by using the concepts/principles of national quality awards of various countries. It is an introductory conceptual framework and using a benchmarking method by studying the characteristics and practices of private schools that are recognized for their excellence. The research process was divided into 5 steps. Step 1: Study of relevant knowledge; Step 2: Analyze the administrative system of excellent private schools; Step 3: System design; Step 4: Examine and improve the administrative system that focusing on the excellence of private educational institutions and the 5th stage. Summary of research results consists of main components child element and guidelines in each sub-organization. There are 9 main components of a management system that focuses on excellence in private schools: 1) Leadership of educational institution administrators, 2) Focus on students, parents and related persons, 3) Strategic planning, 4) Structure Organization, 5) Focus Human Resources, 6) Academic Administration, 7) Financial Management, 8) General Administration, and 9) Information and Knowledge Management. It consists of 35 sub-components and a total of 209 items.

The development of effective student activity management according to Sangahavatthu IV for schools under the Office of Primary Education Service Areas is divided into 2 parts: 1. Development of effective student activity management. For schools under the Office of Primary Education Service Areas, it consists of 1.1 policy formulation and guidelines, 1.2 monitoring supervision, 1.3 promotion and support, 1.4

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assessment and reporting, and 2. development of student activity management to be effective according to Sangahavaththa IV principles for schools under the Primary Educational Service Area Office, consisting of 2.1 Giving, 2.2. Piyavacha (spoken speech), 2.3. Atthachariya (behaves for the benefit), and 2.4. Samanattata (appropriate behavior), which is consistent with the research results of Boonruang Kankrot [8] has conducted a research on "Public mind activity management model in schools in secondary education areas". Management model of public activities in schools in secondary education area created and received. There are 4 components to check the suitability of experts, namely Component 1 Policy on Public Mind Activity Management, which has 3 sub-components: 1) Policy formulation, Mission vision the purpose of administering student development activities; 2) a committee for managing student development activities; 3) an educational institution development plan and guidance activities student activities social and public benefit activities. Component 2 Objectives Public mind activity management, which has 4 sub-components consisted of 1) Promote the organization of activities by allowing learners to be the operators themselves focus on analytical thinking and creative thinking. 2) Promote teaching and learning activities to instill for learners to serve their families, communities, schools. 3) Promote awareness of self-sacrifice for the benefit of society, way of life, traditions and culture on a continuous basis; public mental activity with educational institutions and government and private agencies. Component 3: The scope of public mind activities which covers 5 types of activities, namely 1) learner development activities, 2) campaign activities, 3) social contribution activities, 4) disaster victims activities, and 5) empowerment activities sacrificing hearts for society. Component 4 The process of managing public mind activities, which has 45 sub-components. The results of the assessment of the public mind activity management model. In schools in the secondary education area, it was found that there was a high level of feasibility and usefulness. and in accordance with the research results of Orasa Songsri [9] conducted a research on "Participative Student Affairs Management Model of Secondary Schools under the Secondary Education Service Area Office". Participatory student affairs management model of secondary schools Under the Office of Secondary Education Service Area consists of 3 main forms and sub-organizations as follows: 1) Student Affairs Committee, 2) Scope of Student Affairs Administration The sub-models are 2.1) Student Services and Welfare, (2.2) Student Activities, (2.3) Student Support System, (2.4) Activities that are the Focus and Identity of the Educational Institutions. 3) Participatory Student Affairs Management Process join the model was evaluated for

feasibility and usefulness. The stakeholder in the student affairs administration of secondary schools has a high level of assessment results.

The presentation of the development of effective student affairs administration based on Sangahavaththa IV Principles for Schools under the Office of Primary Education Service Areas (S S S Model) should increase the focus on three key areas: 1. Student Affairs Administration, student activity management. It is a process or plan of organizing activities in a systematic manner with caretakers responsible for each step implementation of plans and projects and assessment at the end of the process consists of 4 aspects: (1) policy formulation and guidelines, (2) supervision, (3) support, (4) assessment and report. 2. Sangahavaththa IV is the Dharma that binds each other's kindness. There are 4 aspects of effective management of student activities, namely (1) Giving, (2) Piyavaca (spoken speech), (3) Atthachariya (benevolent behavior), (4) Samanattata (Possessing oneself appropriately). 3. School Schools by developing effective management of student activities according to Sangahavaththa IV for schools under the Primary Education Service Area Office. There should be participation among schools, i.e. administrators, teachers and school directors, parents, students, and communities. This is consistent with the research findings that Ziegler, Michele Flasch [10] studied the impact of teaching and learning management on schools community-based approach to students with extraordinary abilities and special need merged together in a secondary school. Results of this study found that the structure of the school teacher's belief practice and experience influencing community-based teaching and learning management. Learners will acquire skills more specific and understandable learners develop three key skills: (1) communication skills, (2) leadership and citizenship, and (3) working with peers other f is efficient Learners gain knowledge and understanding in four areas: (1) they have learned that there are various methods of learning. (2) Learn how to work in real work situations. (3) Get started and discover what a community is. A community is a living resource and being a learning resource for the school; and (4) gaining a better understanding of the curriculum of the school that they have studied. For the constraint conditions, there are 3 factors: (1) the natural ratio of normal learners to those with low ability, (2) learners' preferences will be determined by peer groups as inputs, and (3) teachers and mentors must be aware of and understand the characteristics of class community-based teaching and learning management. It must link classroom learning or an objective that combines the academic skills and learning opportunities of all learners. Finally, limitations or continuity of learning arrangements. There are five aspects of

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community-based teaching: (1) lack of classes; (2) the number of classes with specific needs being exceeded; (3) the accessibility, (4) the limitations of the less skilled learners in this learning method, and (5) the community-based teaching and learning management. The base does not allow learners to have repeated practice sessions continually enough. Including in accordance with the research results of Lethwood, Leonard and Sharratt [11] conducted a study of educational institutions with Promote knowledge management to become a learning organization. It was found that the structure of those educational institutions will look flexible. It allows for joint decision-making by teachers and stakeholders, and there must be a collaborative and unified corporate culture have values that support each other. Respect the opinions of colleagues is determined to use courage to create new works exchanging feedback, congratulating mutual success focus on learners' needs and achievements, exchange ideas and share resources informally, as well as continually develop professional skills. It consistent with the findings of Gold [12], a study of organizational knowledge management performance, the findings indicate that the symbol of the new economy is awareness of the value of knowledge assets although competition is a prerequisite for an organization that is developed based on knowledge management. It is difficult to successfully develop an organization under a knowledge management system because the organization still has a work process under the success of the knowledge management system and traditional culture exists. The effectiveness of knowledge management is therefore fundamental investment in technology and modification corporate culture in the same direction. It is a prerequisite for knowledge management in the organization. and in accordance with the findings of Sallis and Jones [13], the study of the key components in the knowledge management in the organization found that the components of vision and mission. cultural component strategy Organization, learning organizational component, leadership and management component, team and learning team component, process component, knowledge sharing, creativity. knowledge and expertise. It is an important element that encourages knowledge management in organizations succeed the vision and leadership components of executives are the most important for defining important knowledge in the organization.

VI. RECOMMENDATIONS

A. General Recommendations

Research results on Management of student activities in primary schools, the results of the study showed that the researcher has suggestions as follows:

1. Executives should have a strategic plan in the administration of student activities that are clear and practical, there should be sincerity in planning and clearly defining the direction of student activity management.

2. Administrators should have a good working system and quality refers to the efficiency and effectiveness of past student activities management. Administrators should be managers who are trained to develop and change the student activity management system to keep progress.

3. Executives should perform their duties strictly and always be strict and punctual, which creates motivation for the work of subordinates and should be a good role model, and should be a manager who should be a good role model have good human relations high responsibility, and always be committed to your job and inspire your subordinates.

4. Management should always sacrifice their interests for the benefit of their participation and be generous to each other and should be a manager who has patience and distillation. When any emotion affects it, it does not show it to the subordinates.

B. Recommendations for further research

If there is research on student activity management in the next time, the researcher would suggest conducting research in the following aspects.

1. Should study factors affecting student activity management primary school in other educational areas.

2. Should be studied in conducting research that narrows the scope of the research area and should be defined as only the educational area.

3. Should study about other factors that affect the management of student activities such as school administration educational innovations.

4. Should study the application of other Buddhist Dharma principles such as Itthipada IV, Brahmawihara IV, etc. that can be applied to the administration of student activities.

VII. CONCLUSION

The management of student activities in schools under the Office of Primary Education Service Areas consisted of 4 aspects: 1) policy formulation and guideline, 2) monitoring, 3) promotion, and 4) assessment and reporting at a high level, in each aspect, it was at a high level in all aspects. As for the development of student activity management to be effective according to Sangahavathu IV for schools under the Office of Primary Education Service Areas, it was found that student activity management is a process or plan of organizing activities in a systematic manner with caretakers responsible for each step. Implementation of plans and projects are evaluated at the end of the process, consisting of the setting of

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rules and criteria for student development activities of schools under the Office of Primary Education Service Areas. This is to follow up on the preparation of work plans, projects, calendars of student development activities of schools under the Primary Education Service Area Office. This is to recruit and support resources related to student development activities as well as giving advice to personnel involved in organizing learner development activities of schools under the Primary Education Service Area Office. This was to acknowledge the results of the assessment as well as to suggest guidelines for student development activities of schools under the Office of Primary Education Service Areas. As for the Sangahavattha IV principles, it is the Dharma that binds each other's kindness committing goodwill to generosity and harmonization consisted of: 1) Giving alms, giving charity, generosity, helping and sharing of the development of student activity management to be effective according to Sangahavatthu IV for schools under the Primary Educational Service Area Office; 2) love each other polite and sweet speech of the development of student activity management to be effective according to Sangahavatthu IV for schools under the Office of Primary Education Service Area; 3) eager to help giving with physical strength of the development of student activity management to be effective according to the Sangahavatthu IV for schools under the Primary Education Service Area Office; 4) Treat all people equally for the development of effective student activity management according to the Sangahavatthu 4 for schools under the Primary Education Service Area Office. For the presentation of the development of effective student activity management according to the Sangahavatthu IV for schools under the Office of Primary Education Service Areas (S S S Model), there should be 3 key focus points added: 1. Student Affairs Administration student activity management, it is a process or plan of organizing activities in a systematic manner with caretakers responsible for each step Implementation of plans and projects and assessment at the end of the process consists of 4 aspects: (1) policy formulation and guidelines, (2) supervision, (3) support, (4) assessment and report. 2. Sangahavatthu IV is the Dharma that binds each other's kindness. There are 4 aspects of effective management of student activities, namely (1) alms (giving), (2) piyavaca (spoken speech), (3) atthachariya (beneficial behavior), (4) Samanattata (Possessing oneself appropriately). 3. School Schools by developing effective management of student activities according to Sangahavatthu IV for schools under the Primary Education Service Area Office. There should be participation among schools, i.e. administrators, teachers and school committees, parents, students, and communities.

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Model of Effective Administration Development based on Good Governance for Primary Schools under Office of Primary Education Service Area

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Abstract— The purposes of this research were: 1) to study the administrative conditions based on good governance for primary school under Office of Primary Education Service Area, 2) to develop a model of effective administration based on good governance principles for primary school under Office of Primary Education Service Area, and 3) to propose a model of effective administration based on good governance principles for primary school under Office of Primary Education Service Area. Research instruments were a questionnaire distributed to 400 school teachers under Office of Primary Education Service Area, interview form by interviewing 24 key informants, 24 school administrators and questionnaires for group discussion with 10 experts. Quantitative data were analyzed by using percentage, frequency, mean, standard deviation, and data from focus group discussion were analyzed by content analysis. The findings of this study were as follows: 1) Effective administration of good governance for primary school under Office of Primary Educational Service Area consisted of 4 aspects, which were 1) academic administration, 2) human resource management, 3) budget administration, 4) general administration. Opinions of personnel towards Effective administration of good governance found that the overall results was at the high level and the individual aspects were in the high level in all aspects. The development of an administrative development model based on good governance principles for primary school under Office of Primary Education Service Area consisted of 2 principles as follows 1) School administration principles is the operation in all 4 aspects of the school, which are (1) academic administration, (2) human resource management, (3) budget administration, (4) general administration. 2) Good governance corporation, it is the principle of good governance and fairness, honest, transparent efficiency and effectiveness consisted of (1) the rule of law, (2) the moral principle, (3) the principle of transparency, (4) the principle of responsibility, (5) the principles of participation, (6) the principle of worthiness. SAG Model was developed for effective administration based on good governance principles for primary school under Office of Primary Education Service Area. There are three important focus points which are: 1. School Administration, School Administration is the operation in all 4 aspects of the school, which are (1) academic administration, (2) human resource management, (3) budget administration, (4) general administration. 2. Administrator, School Administrator must be developed based on good governance principles that are effective for primary school under Office of Primary Education Service Area which must be shared among administrators, teachers, school board members, monks, parents, students and communities. 3. Good Governance, Good governance principles must be developed based on good governance principles that are effective for primary school under Office of Primary Education Service Area which consisted of (1) the rule of law, (2) the moral principles, (3) principles of transparency, (4) principles of responsibility, (5) principles of participation, (6) principles of worthiness.

Index Terms— School Administration, Administrator, Good Governance

I. INTRODUCTION

Changes or advancements that occur in cities and communities at all levels are rapid, sudden and sometimes confusing allowing material prosperity to permeate and replace spiritual prosperity in every community at the same time. Management that a person or entity adopts such as management focusing on economic growth, modernization and income enhancement, has emphasized or given more importance to the object and the greater the material

prosperity, the less the spiritual prosperity. In addition, important problems faced by the nation, country, society and community both in the past and present, such as the problem of corruption and drug problems economic problems and political and administrative problems[1].

At present, any organization or agency can operate to achieve its objectives and the goals of the organization depend on many factors, including people, money, materials, equipment and management. For executives, it is considered the most important person in many different departments because it is the head of the unit that controls, supervises, and operates. It

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is smooth and accomplished according to the goals executives or leaders or organization organizers or supervisors no matter how small the agency or large agencies, government agencies, or private sectors will play a role that affects the success or the efficiency of the work, how much education will be developed to be effective? Educational institution administrators play an important role in teaching and learning and developing various aspects of people in the nation. Administrators must be qualified in all aspects such as academic and moral aspects[2]. It has been said that the quality of educational administrators means readiness in the quality management of educational institution administrators by demonstrating potential quality development process and quality control of educational institute administrators. The most important administrative resources are executives. Executives are the premise of the organization and is the lamp of the worker or subordinates good executives must be knowledgeable operational capability and try to make himself a believer of the participants or truly subordinate. The efficiency and performance of management's management depends on many important elements including knowledge and understanding of management principles including experience and management skills of executives in the operation of executives. There is a need for a process to induce people in the organization to have the intention of working successfully by giving everyone the opportunity to participate in expressing opinions together and making decisions work together. The executives must have the necessary skills in the management of 3 things, namely work skills, interpersonal skills, and thinking skills. In addition, the executives must have proper operating principles. This will result in co-workers or subordinates to have faith and determination to work to achieve the goals, so how much will the operation be successful according to the objectives that would depend on the ability of the executives to apply the management principles to the administration in accordance with the principles of good governance. It is an important guideline for organizing society in both the government, business, private and public sectors which covers the academic department Operations Department, Government Department and Business Department. It is a new era of management that emphasizes transparency that can check responsibility good behavior participation and justice by adhering to the 6 basic principles which are rule of law, principle of morality, principle of transparency principle of participation principle of responsibility and value principles. This is to raise awareness of rights and duties that having a sense of social responsibility paying attention to the problems of the people that have the courage to take responsibility for your actions adhere to the correctness and beauty uphold the principles of

honesty, diligence, patience, discipline give everyone the opportunity to participate in decision making. It is economically manage limited resources value for maximum benefit disclosure useful information for the public to participate in the verification of the correctness of the operation.

Educational institutions are one of the organizations that are important to the management of education. There are executives to supervise providing quality teaching and learning management and the teacher's work is done according to the goals set with efficiency and effectiveness. The administrator of the school (school), who is the head of the school, plays a very important role in the development of education and creating efficiency of educational institutions leadership is a measure of how well a leader possesses the qualities, abilities, and leadership that is appropriate for the position and executives as leaders of the agency will be able to cooperate well. In management, it is necessary to show appropriate leadership roles to colleagues because leadership affects the performance of colleagues and in addition to showing proper leadership roles. Administrators must also apply good governance principles in the administration of educational institutions to be effective. This will result in better quality educational institutions.

For that reason, it caused a change in government management, it said that guidelines for school administration from the Office of the Education Council Secretariat [3]. Mechanisms and rules are management inconsistent with social and global changes. Thus causing corruption, unethical behavior and lack of transparency in administration and people inaccessible. In the end, the information administration caused many problems that followed, which the researcher had to study. School guidelines suggestions under the Primary Education Service Area Office. There is a promotion for educational institutions to provide quality education according to educational standards by adhering to the principles of good governance in the administration of educational institutions to be ethical and transparent from the foregoing. The researcher was interested in the development model of effective governance for primary schools under the Primary Education Service Area Office. There were 27,709 schools under the responsibility of the administrators was applied the principles of good governance in the administration of educational institutions and staff, teachers, teachers of the school under the Primary Education Service Area Office have a view on the administration according to the good governance of the administrators of educational institutions under the Office of Primary Education Service Areas how much is this.

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II. OBJECTIVES

The purposes of this research were 1) to study the administrative conditions based on good governance for primary school under Office of Primary Education Service Area, 2) to develop a model of effective administration based on good governance principles for primary school under Office of Primary Education Service Area, and 3) to propose a model of effective administration based on good governance principles for primary school under Office of Primary Education Service Area.

III. RESEARCH METHOD

This study used the survey research model along with the in-depth interview and focus group discussion which is a mixed methodology research between quantitative research and qualitative research by analyzing data from documents, textbooks, data, statistics, research reports of various departments academic articles, dissertations, as well as related research both at home and abroad. An interview form created by the researcher was used to study the opinions of the educational institute administrators who were the target groups as a case study by distributing 400 questionnaires to teachers in schools under the Primary Educational Service Area Office. Interview form by interviewing key informants, namely 20 school administrators, and questionnaires for group discussions. There were 11 key informants. The researcher collected the data and analyzed the data, consisting of 1) Document Analysis using content analysis. 2) Analysis by using statistics, percentages, values Frequency, Mean, Standard Deviation. 3) Data from interview was analyzed by using content analysis and summarizing the results according to the interview form. 4) Data from focus group discussion was analyzed by using content analysis.

IV. RESEARCH RESULTS

The results of the study of effective governance in accordance with the principles of good governance for elementary school under the Primary Education Service Area Office.

The level of opinion towards effective governance for elementary school Under the Office of Elementary Education Service Areas, all 4 areas consisted of 1) academic administration, 2) personnel management, 3) budget management, and 4) General administration found that the opinions of personnel towards effective governance for elementary school under the Primary Education Service Area Office. In overall, it was at a high level, while each aspect was at a high level in all aspects.

The results of a study on the development model of effective governance in accordance with the principles of good

governance for primary school under the Primary Education Service Area Office.

For development of primary school administration under the Primary Education Service Area Office, it is the educational administration process of an educational establishment or school in which administrators conduct activities or use various processes by the cooperation of administrators and those involved in education starting from planning diagnosis, command, administration, control and management to provide quality educational institutions. Learners have shown the knowledge, abilities, and have desirable characteristics according to the intention of the study for peaceful coexistence in society. It is the administration of educational institutions that are related to 4 areas: 1. Academic administration, it is the administration of all kinds of activities in educational institutions or schools about improving the development of teaching and learning to be effective and the most efficient because it is the duty of every educational establishment is to provide academic knowledge to learners. It is the recruitment of qualified people to work in different positions for maximum effectiveness. However, the happiness and satisfaction of the personnel in the school must be taken into account as well. It is the planning of resource utilization to achieve the objectives of the plan and project set up efficiently. It meets the needs of the school and all related parties. 4. In general administration, it is a general administration task that is related to the school management system to other administration achieve the standard quality and goals set. It plays a major role in coordinating, promoting, supporting and facilitating various activities in all types of service aim to develop schools to use innovation and technology appropriately. Promote work operations according to management principles that focus primarily on job achievement with an emphasis on transparency responsible, verifiable, and involvement of personnel and other related agencies to achieve efficient and effective operations for the development of effective governance for primary school under the Primary Education Service Area Office. It is the principle of good governance and good governance honesty transparent Efficient and effective. This research is based on the regulations of the Prime Minister's Office on the creation of a system to manage the country's affairs and good society BE 2542 which consists of 6 main principles as follows: 1. Rule of law is the rules and regulations used as agreements of agencies by regulation and the enforcement criteria that must be fair accepted by members. Those rules and regulations must bring about equality among the members of the agency and service recipients including facilitating control and develop service recipients by defining and follow the rules that have been

strictly adhered to. 2. Morality is the principle of doing what is right with honesty, sincerity, adherence to the correctness and goodness on the basis of morals and ethics under the rules and regulations of the service recipients. It is also beneficial to society and the nation. 3. Principles of transparency. This is to build mutual trust of the agency and service recipients by improving the working mechanism of the organization to be transparent and verifiable. It is a commitment and determination to work to the best of our ability to achieve success comply with relevant government regulations operate with a sense of duty, society, people and the country, taking into account the interests of service providers and the public as a priority. It is including accepting the consequences arising from such operations both good and bad as well as to show the facts about the mission to the public able to explain reasons and ready for public scrutiny. This is an opportunity for personnel in the agency and service recipients. who are involved or affected by the management or the actions of various agencies have been recognized share opinions, make decisions, as well as support, monitor and verify compliance with what they have decided. It is management using limited resources with economy for the greatest benefit to the public make work more efficient and productive.

Results of the presentation of the effective administration development model according to the principles of good governance for primary school under the Primary Education Service Area Office.

A model of effective administration based on good governance principles for primary school under Office of Primary Education Service Area (SAG Model) is to achieve success. There will be three key focus areas: 1. School Administration, it is the implementation of the work in all 4 areas of the school, namely (1) academic administration, (2) personnel management, (3) budget management, and (4) general administration. 2. Administrator school administrator to develop effective management in accordance with the principles of good governance for elementary school Under the Primary Education Service Area Office. There must be participation between administrators, teachers, school committees, monks, parents, students and communities. 3. Good Governance Principles of good governance to develop effective management in accordance with the principles of good governance for elementary school Under the Office of Elementary Education Service Area consists of: (1) rule of law, (2) principle of morality, (3) principle of transparency, (4) principle of responsibility, (5) principle of participation, and (6) principle of value.



Fig 1: Model of Effective Administration Development based on Good Governance for Primary Schools

V. DISCUSSION

Effective administration based on good governance principles for primary school under Office of Primary Education Service Area consisted of 4 areas which were 1) academic administration, 2) personnel management, 3) budget management, and 4) General administration. It found that the opinions of personnel towards effective governance for elementary school under the Primary Education Service Area Office Overall, it was at a high level, while each aspect was at a high level in all aspects. This is consistent with the research results of Banchong Charoensuk [4]. "Developing a model of educational institution administration according to the principles of good governance in basic education institutions in the upper southern provinces". The state of educational institution administration showed a lack of good governance in all aspects. The model of educational institution administration according to the principles of good governance was found to consist of 4 administrative tasks. The aspect is academic administration, budget management, personnel management, and general administration. Each area consists of 6 principles of good governance, a total of 189 items, and the format is appropriate to be put into practice at the highest level in all of them and in accordance with the research results of Nippon Sroisuwana [5] conducted a research on "School management according to the principles of good governance of schools under the Education Service Area of the 18th Government Inspectorate". Results of a study on the condition of the school administration according to Good Governance Principles of Schools under Educational Service Areas Government Inspectorate Area 18 found that, overall, the principles of good governance had a high effect on the quality of education and when considering Details were found to be at a high level for all components as well. Compared to the set

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criteria, results of the analysis consisted of 118 independent variables, leaving a total of 72 variables with 9 important components, comprising (1) principles of management, (2) moral principles, (3) The principle of participation, (4) the principle of value, (5) the principle of accountability, (6) the rule of law, (7) the principle of transparency, (8) the principle of development human resources, and (9) principles of information and communication technology. The results of the study of selection factors. It was found that there were select factors that could explain the variance or predict able to manage educational institutions with the school's quality significantly at the .05 level, totaling 15 factors.

Effective administration based on good governance principles for primary school under Office of Primary Education Service Area consisting of:

1. Development of primary school administration under the Primary Education Service Area Office, it is the educational administration process of an educational establishment or school in which administrators conduct activities or use various processes by the cooperation of administrators. Those involved in education starting from planning Diagnosis, command, administration, control and management to provide quality educational institutions and learners have knowledge, abilities, and have desirable characteristics according to the intention of the study for peaceful coexistence in society which is the administration of educational institutions that are related to 4 areas: 1.1 academic administration. It is the administration of all kinds of activities in educational institutions or schools about improving the development of teaching and learning to be effective and the most efficient because it is the duty of every educational institution is to provide academic knowledge to learners. 1.2 Personnel management, it is the recruitment of qualified people to work in different positions for maximum effectiveness. However, the happiness and satisfaction of the school personnel must be taken into account as well. 1.3 Budget management, it is the planning of resource utilization to achieve the objectives of the plan and project set up efficiently. It meets the needs of the school and all concerned parties. 1.4 General administration. It is a general administration task that is related to the school management system to other administration achieve the standard quality and goals set. It plays a major role in coordinating, promoting, supporting and facilitating various activities in all types of service aim to develop schools to use innovation and technology appropriately, and promote work operations according to management principles that focus primarily on job achievement with an emphasis on transparency responsible, verifiable, and involvement of personnel and

other related agencies to achieve efficient and effective operations.

2. Development of Effective administration based on good governance principles for primary school under Office of Primary Education Service Area, it is the principle of good governance and good governance honesty transparent Efficient and effective. This research is based on the regulations of the Prime Minister's Office on the creation of a system to manage the country's affairs and good society BE 2542, which consisted of 6 main principles, namely: 2.1 rule of law is the rules and criteria used as an agreement of the agency by regulation and the enforcement criteria must be fair accepted by members. Those rules and regulations must bring about equality among the members of the agency and service recipients including facilitating control and develop service recipients by defining and follow the rules Rules that have been strictly adhered to. 2.2 Moral principles are principles of doing what is right. With honesty, sincerity, adherence to the correctness and goodness on the basis of morals and ethics under the rules and regulations of the service recipients. It is also beneficial to society and the nation. 2.3 Principles of transparency, this is to build mutual trust of the agency and service recipients. by improving the working mechanism of the organization to be transparent and verifiable. 2.4 Principles of responsibility, it is a commitment and determination to work to the best of our ability to achieve success comply with relevant government regulations operate with a sense of duty, society, people and the country, taking into account the interests of service providers and the public as a priority. including accepting the consequences arising from such operations both good and bad as well as to show the facts about the mission to the public Able to explain reasons and ready for public scrutiny. 2.5 Principles of participation, this is an opportunity for personnel in the agency and service recipients. who are involved or affected by the management or the actions of various agencies have been recognized share opinions, make decisions, as well as support, monitor and verify compliance with what they have decided to share. 2.6 Principles of value for money, it is management using limited resources with economy for the greatest benefit to the public make work more efficient and productive This is consistent with the results of research by Vicki and Clarke [6]. The use of good governance in the decentralization of democratic governance in Ghana found that in countries underdeveloped democratic governance. There has been a decentralization of power from the central to the local area with more people participating resulting in a serious development strategy. There are adaptations in local practices.

Using good governance that is appropriate for the locality until it is considered the key to implementing good

governance made changes for the better, but there are still problems from the persistence of partisans. and also consistent with the findings of Kimmet [7], a research study on applying good governance principles in political regimes in 4 ASEAN countries. The principles of good governance have been applied as a political strategy rather than a policy application. In these four Southeast Asian countries, the Philippines, Thailand, Malaysia and Indonesia, the country is considered and compared with a case study by studying how these countries have adopted the principles of good governance including participation of good governance. In the 2004 elections, it was found that governance was widely adopted and a key issue in reforming form of government. In addition, they also learned how to apply good governance principles for the development of politics and government, emphasizing on applying good governance principles to the development of the country especially in the state of the country is uncertain and the economy is tight to be a model and a way to manage new countries because good governance supports politics and governance, the concept of good governance originates from Western nations which creates new forms of management and contributes to democratic development that is one of the key objectives of good governance.

Effective administration based on good governance principles for primary school under Office of Primary Education Service Area (SAG Model) to achieve success. There will be three key focus areas:

1. School Administration school administration, it is the implementation of the work in all 4 areas of the school, namely (1) academic administration, (2) personnel management, (3) budget management, (4) general administration, 2. Administrator, school administrator to develop Effective administration based on good governance principles for primary school under Office of Primary Education Service Area, there must be participation between administrators, teachers, school committees, monks, parents, students and communities. 3. Good Governance Principles of good governance to develop effective management in accordance with the principles of good governance for elementary school Under the Office of Elementary Education Service Area consists of: (1) rule of law, (2) principle of morality, (3) principle of transparency, (4) principle of responsibility, (5) principle of participation, (6) principle of value. This is consistent with the research results of Weerayuth Pornpotthanamas [8]. "Good governance in government organizations: a case study of schools under the Office of the Basic Education Commission". There are 8 aspects of good governance that are suitable for school administration, namely rule of law, principle of morality,

principle of transparency principle of participation principle of responsibility Value principle. The goal is consistent with society and the security principle from fair compensation and welfare the condition of school administration according to the principles of good governance as a whole was at a very high level. The results of the qualitative and quantitative data analysis were consistent with the factors affecting the level of school governance which is a factor of the internal environment of the school, i.e. the shared values of the school; The school's operating system, personnel, skills, and style. The factors of the school's external environment that affected it were the political environment. Suggestions for encouraging schools to implement good governance in school management successfully. The government should play a role in tangible promotion by measuring good governance in schools. There were incentives for schools to implement good governance in schools based on the 8 elements of the findings from this research. It is also consistent with the research results of Phithak Thipwaree [9] researched on "Innovative leadership development model for executives of the Institute of Physical Education". There are 10 components of innovative leadership for the administrators of the Physical Education Institute: 1) Social competence, personality and skills, 2) Team leadership, 3) Being a role model, 4) Thinking leadership, 5) Promoting development, 6) Trust, 7) Creating an Atmosphere of Learning, 8) Management, 9) Support, 10) Participation development model Innovation leadership for administrators of physical education institutions consists of 4 parts: 1. Principles and objectives, 2. Elements of innovation leadership that must be developed. 3. There are five stages in Innovation Leadership: Stage 1 preparing for development, stage 2 realizing the need for development, stage 3 implementing development, stage 4 implementation, stage 5 evaluation of development, and 4. Performance evaluation. This also consistent with the research results of Supawadee Wongsakul [10] researched on "Change Leadership Development Model effective in the administration of basic educational institutions". The effectiveness of basic school administration is to achieve school goals at a high level and the satisfaction of teachers were at a high level, respectively. Basic educational institutions are: Factors in the characteristics of executives behavioral factors and situational factors for the transformational leader development process model Effectiveness in the administration of basic educational institutions is divided into 4 steps: self-assessment, planning, self-development, development implementation. and evaluating success. The development process is divided into 3 types, namely training programs, development activities and self-development activities; and to examine the suitability and feasibility of

transformational leadership development models productive. In the administration of basic educational institutions, it found that from small group discussions all 18 qualified persons agreed that the pattern is suitable principles and reasons, objectives, factors and development processes are consistent. It is possible to use it for further development of administrators in basic education institutions.

VI. RECOMMENDATIONS

A. General Recommendations

Research results on an Effective administration based on good governance principles for primary school under Office of Primary Education Service Area, the researcher has the following suggestions:

1. Rule of law management should be commended. Compliment teachers and students for following the rules school regulations which may be awarded or promoted job duties.
2. Moral Executives should treat everyone equally. There is no partiality or nepotism in the performance of duties towards teachers or students and should operate in accordance with the principle of impartial accuracy and be a good adviser to all personnel in the school.
3. Transparency Executives should have an open management plan decentralized and assigning duties to teachers to act with due diligence and there are audits of financial management with transparency and honesty.
4. Principles of participation executives should provide opportunities for the community network parent or people with local knowledge have come to educate students and organize more activities in the school to make school development a truly participatory.
5. Principles of responsibility Administrators should trust the performance of the teachers assigned to work in various fields. Administrators only provide advice, guidance or assistance in cases where teachers need and should implement projects including tracking summarize the evaluation of personnel clearly in order to make teachers feel proud of their own performance and use the information obtained to improve and develop themselves better in the next time.
6. Value principle, the administrators should have a meeting to plan the annual budget appropriately and use that budget for the benefit of the school and manage the school environment for maximum benefits.

B. Recommendations for further research

If there is research on good governance next time, the researcher recommends conducting research in the following ways.

1. Should study from schools that have developed management according to the principles of good governance that the same or different virtues were applied from this research.
2. Should study the principles of Buddhism to be used in conjunction with the development of management according to the principles of good governance such as Iddhipada IV, Sangahavathu IV, etc.
3. It should be studied in conducting research that narrows the scope of the research area should be defined as specific educational areas.
4. The results of the research should be applied in schools or the next agency in order to consider the achievements in the development of management according to the principles of good governance.

VII. CONCLUSION

Effective administration based on good governance principles for primary school under Office of Primary Education Service Area, all 4 areas consisted of 1) academic administration, 2) personnel management, 3) budget management, and 4) General administration. It found that the opinions of personnel towards effective governance for primary school under the Primary Education Service Area Office. Overall, it was at a high level, while each aspect was at a high level in all aspects. As for the development of an effective management development model according to the principles of good governance for elementary school under the Office of Primary Education Service Area consists of 2 principles as follows: 1. Principles of school administration. It is an operation in various fields in all 4 areas of the school, namely (1) academic administration, (2) personnel management, (3) budget management, and (4) general administration 2. Good governance principles, it is the principle of good governance and good governance honesty transparent efficient and effective which consisting of (1) the rule of law, (2) the principle of morality, (3) the principle of transparency, (4) the principle of responsibility, (5) the principle of participation, and (6) the principle of worthiness. For an effective management development model based on good governance for elementary school under the Office of Primary Education Service Area (SAG Model) to achieve success, there will be three key focus areas: 1. School Administration, it is the implementation of the work in all 4 areas of the school, namely (1) academic administration, (2) personnel management, (3) budget management, (4) general administration, 2. Administrator, school administrator to develop effective administration in accordance with the principles of good governance for elementary school under the Primary Education Service Area Office There must be

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participation between administrators, teachers, school committees, monks, parents, students and communities. 3. Good Governance Principles of good governance to develop Effective administration based on good governance principles for primary school under Office of Primary Education Service Area consisted of: (1) rule of law, (2) principle of morality, (3) principle of transparency, (4) principle of responsibility, (5) principle of participation, and (6) principle of worthiness..

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The Roles and Achievements of Students in Faculty of Education Major in Thai Language Teaching of 5th year Student School Year on 2020: A Case Study of Yasothon Buddhist College

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Abstract— Education is important to the development of the country to advance in modern information technology. Countries with a thorough and fairly educated population tend to be successful in almost every way. This is because the development of the country requires workforce. Moreover, an important process in social development is education, which allows people to acquire practical knowledge. have intelligence, make good decisions have morals, and morals are responsible for the job duties, where education to perform such duties requires teachers. Therefore, it is imperative to prepare teachers with the ability and readiness to pass on academic knowledge, teaching, interpersonal, moral, and behavioral teaching, including the measurement and evaluation of education. The producing teachers to have good teachers with quality and spirit of teachers is if only studying the theory of theory would not solve the problems of education, so a sufficient amount of practical training is needed. Until being able to perform the teacher's duties well, have confidence and confidence in the work to love genuine faith in the teaching profession. Teaching practice training is a practical process. It is like the heart of teacher production. It is a vital and important experience. Because it is an important time for students and teachers to examine themselves by applying the theory that has been learned in various subjects how appropriate to apply to practice, it is an important opportunity for students to practice their experience under the guidance of a mentor. The supervisor got to know students practice working with fellow students and related personnel in the school and the community. Practice responsibility, patience, interpersonal relationships with others, and being able to develop themselves to be better in every area. Therefore, the researcher would like to study the root causes and factors affecting the success of teaching professional experience of faculty of education Thai language teaching program of Mahamakut Buddhist university Yasothon Buddhist College.

Index Terms— Roles and Achievements, Teaching Practice, Yasothon Buddhist College

I. INTRODUCTION

Society is changing all the time, and in the present day, it is changing very quickly. Various scholars also pay great attention to the state of social problems. Scholars have called the human society of the future in a different name, such as Alvin Toffler called the "Third wave era," where he viewed the world's changing as a radical change. The whole world's nature changed whether it is the economy, society, politics, education, etc., with modern technology as a driver. [1, p. 21] While Eric Eric Schmidt & Jared Cohen call this world society as "The digital age changes the world" In addition, Also being called by other names such as the world without borders globalization era [2, p. 141-142] Mr. Suwit Mesinthree, Minister of Higher Education, Science, Research

and Innovation called "The post-knowledge-based society", a world that focuses on friendship. There has been a change in the form of closed people from different people. To different people, different openings It is a world that transcends a competitive society to co-creation. It is a world where wisdom has evolved to transcend intellectual property to public wisdom such as YouTube or Wikipedia, the post-knowledge society world. It is a world that has changed the way of human life from dependence. Towards independence and interdependence [3, p. 1]

Considering Mr. Suwit Mesinthree's concept, it is pretty optimistic. This differs from the concept of James Martin [4, pp. 11-12], which appears in his book. "The Meaning of the 21st Century" James Martin came up with an idea of what will happen in the 21st century, which is quite negative. However, he intends to encourage society to realize and find solutions to

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problems. Like Mr. Prawet Wasi [5, p. 15], who saw that the human lifestyle in the 21st century would be more problematic. Due to passion and delusions. Therefore, Buddhist principles must be used to solve the problem. Education is an essential tool for the development of people and society. Education will develop people to have the desirable characteristics that society needs so that human resources will be a factor in social development in the future. Therefore, educational institutions Education system and educational personnel must play their roles in line with the change of society as a whole. The world society and Thai society are now entering the 21st century, an era of complexity and rapid change. As a result, Thai education is time to change again. To enable education at all levels to produce educational products that are in line with the needs and social contexts effectively and efficiently.

Educational reform is a profound and broad process. If it is a regular change, we do not call it "reform," and on the contrary, if it is radical. Destroying everything that stands in our way is called a "revolution". Therefore, the "reform" is a substantial change. It is a broad change in the whole system. However, step by step change causing it not to be violent or have the least adverse effect It is the way of the civilized people. Suitable for a democratic society that is based on the principle of change without the use of force and violence. The first question that must be asked is why do education reforms need to be reformed and for what areas to be reformed? The immediate answer is that educational problems have been going on for a long time. Usual methods cannot solve it It is necessary to change the system and the vision of practitioners and educational leaders in line with the right ideas. Moreover, the reform of Thai education in the present era educational reform of Thailand in this modern era is due to the fundamental factors that affect it, creating the need for educational reforms due to the following reasons. [6, p. 7]

1. In globalization, the industrial business sector of Thailand has stepped into the technology system. The economy has been adjusted to increase the production potential to be able to compete with the international. The intense competition in the world market for product quality has led many parties to turn their attention to the development of the labor quality of the industrial sector of Thailand. To obtain personnel with sufficient knowledge and skills to use and control production technology appropriately and efficiently. Therefore, it is imperative that the Thai education system has to reform education to be in line with the economic situation by producing quality personnel that meets the needs and satisfaction of the industrial business sector. The advancement of information technology has filled the world with fast-moving information. People with various media in

possession will be able to recognize and experience information quickly. Furthermore, able to exchange information and knowledge more than any other person. The lack of opportunities for information technology services varies due to reasons or limitations such as poverty, living in remote areas, and perception gaps. Information will come up with a group of people that information technology is driven to. At present, the way of life of Thai people has changed a lot due to the influence of globalization. Thai people have more opportunities to receive information. Moreover, creatively, information technology offers people opportunities and options to learn from various channels and forms. Make learning flexible in both time and place. As well as being able to learn and perceive information continuously according to their own interests and in the future, people will seek guidance and find knowledge independently. Learning takes place from educational management in educational institutions by studying through educational technology media that will present various knowledge. And learn from actual events in society learners are the center of learning and build their learning style. The pursuit of knowledge comes from satisfaction. It is learning to gain experience and to study for life-long knowledge.

2. One of the most important fundamental factors that will result in the need for system-wide education reform. Including science education, management Mathematics and technology as well Is the promulgation of the Constitution of the Kingdom of Thailand B.E. 2540 and the National Education Act B.E. 2542 Amendment No. 2 B.E. 2545 [7, pp. 12-13] It is stated in Article 12 show that a person shall enjoy the freedom of education, education, training and teaching, shall be protected as far as it is not contrary to the duties of the citizen or the good morals of the people. And Article 43 show that states that a person shall have the equal right to receive a primary education for not less than twelve years that the state shall provide comprehensively and with quality, free of charge. Providing education and training in the state must consider the participation of local government organizations and private individuals. For science education management mathematics and technology, in Section 23, it is clearly stated that it must be the importance of knowledge, morality, learning process, and integration as appropriate for each level of education, in the area of knowledge and skills in science and technology, as well as in the knowledge, understanding, and experience of management Maintenance and use of natural resources and the environment in a balanced and sustainable manner. The provisions of the National Education Act 1999, 2nd Amendment, 2002 were the driving force behind the need for a major change in education management or to adjust the education system. This

makes it necessary for another educational reform in the history of Thai education management. This includes reforms to education management, science, mathematics, and technology.

It can be concluded that education reform following the guidelines outlined in the said act. The situation in the administration and management will change significantly; for example, there is a decentralization of both administrative and academic power to the local level, with communities, people, and local administrative organizations to play a role in administration and education in the area. People will participate in thinking, planning, making, and monitoring the results of the local education management. Curriculum and instruction must be tailored to meet the diverse needs of learners. It is consistent with the problem conditions and local differences. It provides opportunities for learners to educate themselves in whole community and social environments, emphasizing practice, which of these things will affect the measurement and evaluation as well. For educational institutions to play a comprehensive role in education management. Therefore, the teachers need and educational personnel with knowledge and abilities, skills and experience in teaching and learning management and knowledge transfer; school administrators must have the knowledge and competence in administration and management with efficiency, effectiveness and various elements changes the educational management. [8, pp. 25-26]

II. THE IMPORTANCE OF EDUCATIONAL PHILOSOPHY.

The reasonable beliefs of society are often instilled in the generations to come, so the general philosophy and the philosophy of education are very close. The general philosophy is the study of truth. The method of finding truth and value of things in society, but the philosophy of education is applying general philosophy to apply for education. The management of education is done to develop people, develop society and community to achieve happy peace coexistence. Therefore, general philosophy and educational philosophy are inseparably related. From ancient times to the present, the leading philosophers and educators are often the same people: John Locke, Immanuel Kant, Johann Herbart, John Dewey, etc.

Moreover, not only the origin and evolution of philosophy and educational philosophy are the same. But both philosophy and education are closely related as well. In other words, both philosophical and educational philosophies care about the human story- nature, knowledge, relationships, and human behavior, and at the same time, both disciplines share a common interest in what will contribute to community,

society, nation, and life. well-being, have peace, and live together happily. Educational philosophy in different groups. They are based on different beliefs or philosophical concepts. And because education is an applied science, educators and course developers must study the concepts of philosophy as a concept in order to understand and view problems. Clearly, it will also make a comparative analysis to generate new ideas in education. [9, p. 5]

In conclusion, it can be concluded that since the philosophy of education is related to the concept and belief in organizing education, the educational philosophy has a direct influence on the development of the curriculum. What society has the concept of educational philosophy in a certain way? That concept will then be reflected in the curriculum setting. Teaching and learning management and the measurement and evaluation of teaching and learning, which can be considered from the method of teaching and learning according to the philosophy of education mentioned above. Therefore, it can be said that the philosophy of education is one of the cornerstone of curriculum development. Concepts and methods of educational management therefore bring various knowledge from various disciplines such as philosophy, psychology, sociology, etc. As a guideline for the management of education, the educational sciences will try to select only the important and necessary things or can be applied. To be a component of education management, Selecting things will cover the selection of various sciences at the academic level and select sub-level content within each field of study. The same is true of educational philosophy. Since each philosophy has its own advantages and limitations in each society, in other words, it would be highly limiting if any particular philosophical creed would be applied directly to Thai society. Thai education management in the past between the years 2411-2004 can be said that It follows the essence of religion [10, pp. 35], but today it may be difficult to say what philosophy of education in the Thai curriculum is based on the philosophical doctrine, which may be said for the most part. For example, it could only be said that the 1960's elementary school curriculum was most consistent with fundamentalist Philosophicalism. or the elementary education curriculum in 1978 that is most consistent with reformist philosophy.

The mention of the Thai curriculum is most consistent with that kind of philosophy. It's just to say that for the most part. The concept of educational management is consistent with only one philosophical creed. This does not mean that everything will follow the concept of the philosophical creed at all, perhaps because in addition to the concept of that philosophy and there are also ideas from other philosophical creeds Mixed in Philosophy arising from a combination of

other philosophical concepts that has a unique name. "Mixed Philosophy" By this nature, it can be said that the Thai elementary curriculum follows the cult of blended philosophy. This kind of philosophical concept selects the parts that are considered appropriate from the various philosophical creeds. Come together without directly taking into account any particular creed.

III. CONCEPTS OF PROFESSIONAL EXPERIENCE TRAINING

Professional experience training or internships refers to the process of organizing teaching and learning activities that are jointly performed between the university and the school in order to provide students with the knowledge, skills, and attitudes necessary for professional practice. Being a quality graduate that meets the needs of the school. Able to work correctly and keep pace with rapidly changing technology. In general, the management of higher education or graduate education is aimed at the production of manpower. And human development at the high professional level or a semi-professional level. The elite profession emphasizes the following six key attributes.

- 1) Have a sense of public service, and have a professional commitment
- 2) Have knowledge and skills that are beyond the ordinary understanding of the general public
- 3) It takes a long time to practice the expertise of the profession.
- 4) Have the freedom to make decisions in the scope of the specified work.
- 5) There is control over the standards of professional licensing.
- 6) There is a code of ethics as a framework for professional practice.

From the six criteria, it can be explained that the organization of higher education, regardless of the professional sector, the education management process must be able to balance the knowledge, skills, practicality, and morality. Professional experience training is essential to any integration process. To be harmonious, enhancing the characteristics of desirable educational productivity student, professional experience training aims to provide students with internships in a manner relevant to the course they are studying, some of which are very broad. Students can revise the limitations of practical training. Students can choose to practice a job they are interested in and seek more extensive experience. However, approval from the instructor responsible for the course must be obtained and the head of the relevant department. However, the faculty of education arranges for developing guidelines for professional experience training in conjunction

with the school. To create a shared understanding of the university's objective of sending students to professional experience training. And meet the needs of the school. And Chiang Mai Rajabhat University Explain that the main principles of professional experience training have been described as follows: [11, p. 45]

- 1) Human resource development aimed at developing the potential of students to have quality in various fields. That is conducive to work, and job development in that field encourages students to create a primary or secondary job that interests them in that professional sector.
- 2) Management emphasizes systematic and continuous process management, emphasizes practical coordination theory, which emphasizes practical training as much as possible.
- 3) Relationship development focuses on building good relationships among personnel. Organizations between universities and establishments and external agencies that are conducive to obtaining professional cooperation in training and the employment of students, providing opportunities for entrepreneurs, business owners, and individuals relevant were involved in the administration. Alternatively, manage and organize university education inappropriate scope, encouraging students to build good relationships in teamwork.

It can be concluded that the teaching professional experience training is vital to the development of human resources aimed at developing the potential of students to have quality in various fields. That is conducive to work and job development by encouraging students to create a primary or secondary job that interests them in the professional sector. Management emphasizes systematic and continuous process management, emphasizes practical coordination theory that can be applied, emphasizes practical training as much as possible.

IV. PROBLEMS AND OBSTACLES IN TEACHING PROFESSIONAL EXPERIENCE TRAINING

During the 12th National Economic and Social Development Plan (2017-2021), the development of Thailand is in a time of reforming the country to address many of the fundamental problems that have been established amid a rapidly changing and connected world. Connected more closely. economic competition becomes more intense. The world society will become more and more closely connected as a borderless state. The development of technology will change rapidly and will affect the lives of society. and we are carrying out tremendous economic activities While Thailand has limitations on almost all aspects of the strategic fundamentals. And will clearly hinder development.

The National Economic and Social Development Plan was a very challenging time for Thailand to adapt greatly. It must accelerate the development of science, technology, research, and development. Furthermore, innovation as a critical driver of development in all areas to increase Thailand's competitiveness in the face of increasingly fierce global competition amid a variety of challenges that pose a major obstacle for the country's development. In the long run, it is widely recognized in all sectors that the development of Thailand into a developed country is stable, prosperous, and sustainable in the long run. The country must accelerate the development of strategic fundamentals in all areas, including increasing investment for research and development. The development of science, technology, and innovation must be carried out in conjunction with the acceleration of skill and labor skills. Groups that are about to enter the labor market and those in the current labor market following the target sector of production and service and technological changes including the development of people as a whole to be a perfect person in all ages manageable the change is a living environment as well. In particular, human capital development through enhancing the quality of education, learning, and skill development. and improve the quality of public health services throughout all areas and promote social institutions' role in promoting good people, discipline, good values, and social responsibility.

Professional teacher experience training is the heart of teacher production. It is a practical process that will help to strengthen teachers' students to be people who love and believe in the teaching profession, and it is a necessary component that makes graduates have more skills and readiness to work as teachers. Which is an important part of teacher professional development. Professional teacher experience training has a more critical influence on teacher students than any experience students gain. If practicing teacher training is effective, students can develop their teacher performance and skills. Resulting in graduates teachers of real quality is satisfied with the teacher user agency. [12, p. 3] The challenge in teaching and learning is how to achieve a balance between payoff. And the quality of teaching and learning while still able to meet the diversity of learners.

Problems in the implementation can be processed into three large frameworks: efficiency. Emotional side and the effort in carrying out activities, A McLeod study (1989) found that of a total of 333 reasons faculty refer to This is a problem from teaching efficiency. Total frequency reached 144 or 43.3%. The faculty commented on the more extensive classroom teaching barriers that were more reflected in the effort than regular classroom teaching, 110 or 33%, and the barriers that reflected aspects of the subject matter. Emotion is 79 or

23.7%. The obstacles that teachers are concerned. Is the uncertainty that large-scale classroom teaching and learning processes can be undertaken. [13, p. 8]

4.1 Current problems in Thai education

The problem with the management of Thai education today is well known that in the present day, Thai education has been incredibly depressed. Moreover, we still can't solve the problem today. The problems that arise are almost always a problem with a continuous history. These problems are the problems affecting Thai children enrolled in the Thai education system as follows.

1) The problem of the basic education quality is depressed. In ordinary national educational test: (O-Net) every year, the results are often in the same direction every year. That is, Thai children are always sub-par. Or even a study of the organization for economic co-operation and development: (OECD), known as PISA (program for international students assessment), found that only 1% of Thai students are considered to have high science knowledge. Even though we spend more than 8 hours a day teaching and learning, and the PISA test still found that 74% of Thai children read Thai, they don't know well, ranging from unable to read. Can't read and can't interpret incorrectly analyzed the meaning or even use language to be helpful in the study of other subjects, But we return to these conditions with habit. And it remains to be believed that our children must be developed through traditional educational arrangements.

2) Teacher problems. In Finland, a country with the highest quality of education in the top 10 in the world and most respected is the teaching profession. But in Thailand society instead sees that in this profession not as popular as being a doctor or engineers as expected by society. Thailand produces as many as 12,000 teachers annually, while the rate of recruiting new teachers each year is only 3-4 thousand. Nearly ten thousand graduates of the teachers are initially unemployed. But overall, Thailand still has a lack of teachers. Especially teachers in important disciplines such as science, mathematics, language, etc., and found no clear policy on how to support graduates with relevant subject areas. On the other hand, some discriminatory measures were also found, such as requiring at least one additional year for those who would receive a teaching license to study.

3) There is a shortage of graduates, but graduates are still unemployed. Our country has no plans and mechanisms to regulate the production of manpower to meet the needs of the country. At the same time, the graduates in some fields are overwhelming in jobs. And found that in recruiting some positions, there are tens of thousands of applicants competing for jobs with just a few tens of rates. But some disciplines lack manpower, especially in the industrial and medical sectors.

We want about half of the vocational students to study. Therefore, there will be enough manpower for the development of the country's industry. but in fact, it was found that only 27% of the vocational students were enrolled, including those who did not study in the true vocational field. But went to study in vocational colleges as well, such as in the field of administration Which means, If you count the technician line will be much less than that it turns out that at present, children enrolled in formal education have an apparent future in which they will lose their jobs. And this problem has not been resolved in any way.

4) The problem of poor higher education quality. Many universities are starting to have problems finding people to attend. Causing problems with cost-effectiveness led to the need to carry out marketing in every way and focus on offering courses that are easy to do, low cost, and make money fast, which spread to all levels and degrees. We have overwhelming graduates in many fields. But at the same time, there was a shortage of complex disciplines. Many universities focus on raising money as a system of a quantitative education. The need for this struggle for survival may be understandable for private universities that have to bear the burden of operating fees with their own income. This situation has spread to public universities as well. In the form of directly increasing the number of students or preparing a special project in different ways, including teaching outside the premise, after analyzing the finance of these projects, they will find that most of them become teachers' teaching fees. This situation has escalated to the degree that it can be called an inflation degree at every degree level. Become a social value that requires at least a master's degree. And will continue to threaten to a doctorate.

5) The problems of substandard educational quality, such as Thai students having sub-standard skills, high inequality Students in rural villages had three years of slower reading skills than urban children and poor performance. There is greater use of educational budgets. Spend much time studying, but the student's performance has deteriorated and so on.

4.2 Guidelines for solving Thai education problems

For solutions to problems in the current Thai education system, the main point in cueing the guidelines is to formulate a strategy of change that will produce the best results. And the least negative impact, because changes can always have a negative effect, just like an overdose of drugs has side effects. Moreover, the change strategy or method requires the least amount of resources. It would not be suitable to use a knife to kill cattle. The surgical instruments must be designed to suit the level of the disease. From that point of view, therefore, the following reform proposals are made.

1) Reform of the teaching and learning system and evaluation. This is a strategy of all reforms because if changes can affect the quality of education standards and can solve the problem of consistency with economic development. as well as prepare people for continuing education throughout their lives as well and in this reform, it is necessary to adjust the management system as well. Therefore, editing at this point is the milestone of the whole reform movement.

2) The process of creating a development system both science and systems must work harmoniously and support one another. Education must be involved in the development process in line with this sustainable approach.

3) The process of creating a development system Education must be used to help every component of the community develop harmoniously. This is one of the main principles. Which education will help and have a duty to help but now in education management when we look at that community Where do we look We only look at our students. or look too much at school we don't look at what elements of this community are involved. and how is education going to help develop those elements? That is, education must be harmonized with other activities. That is a component of the community involved in education.

V. FACTORS FOR THE SUCCESS OF TEACHER TRAINING STUDENT

The principle path of accomplishment, a way to work for success that appears in the doctrine of Buddhism, which consists of 4 practices are aspiration, exertion, thoughtfulness, and reasoning which anyone can memorize. but how many people will be able to complete all four processes, which all four steps are continuous? Mutual support cannot be lacking any of the above it will enable us to be successful in life and work as expected. The details are as follows

1) Aspiration is to have a love for what you are doing. having a love for work that is born of faith and believe in what is done. Therefore will produce the actual result as it deserves having a passion for what you are doing is very important. Not to make love for something, because such actions are not really caused by our love and faith. If you force yourself to do it, you will only be suffering. Even though we get something that we have been hoping for. One important thing is that if it is a latency from another idea. another faith or is it something else that we try to find cause and effect to explain that they are the same thing to be able to go?. but if we have a strong faith creative power will be miraculously born to us. If you train yourself, It might start by asking yourself what we believe in. For people, when they believe in anything, they will find it and have access to it. or if you don't believe anything, you

won't have access, you won't have access to anything. because faith brings determination dedicated to doing everything to achieve what we believe in. At the same time, examine yourself to see if what we believe in and what the organization we believe is synonymous. If they match, they learn to change themselves. or if they don't match, learn to give yourself a chance to go to a more suitable place.

2) Exertion is determination. It is a commitment, both body and soul, to learn and get to the core of it. This exertion, coupled with patience, is an indomitable feeling of problems and hope to overcome all obstacles, with faith as a binder and reminder. Patience is also a tool for the calm and the beautiful, so persistence is the path of those who are brave and challenge obstacles. If you are practicing persistence, you must start with the idea that you have to work hard, practice yourself often, work hard, do not be lazy, do not be afraid of mistakes and be assertive for your own failure. Do not be discouraged by hard work and heavy work. Think that if we do a lot we will know more and more skillful don't complain that you don't have time, because everyone has the same amount of time.

3) Thoughtfulness is to have a stable heart and take responsibility. If a person has a stable heart, then thoughtful thinking is born. The meaning of this word is important. This is because at present society is complex, many new things are emerging. each person has many obligations to do. until I don't know what to do before and after. But, if we have a firm heart for what we think, we do and take responsibility. Whether it is studying or working everything will be better on its own we will have more and more knowledge. as we become more informed, prudence will follow. When there is prudence, there will be less mistakes in the decision to do as well. Prudence, in addition to living with knowledge must also rely on goodness as a reminder to be able to use our mind to consider and meditate properly on the very substance of things, because goodness as an example of virtue according to religion and social ethics is the only thing that will allow human beings to live together happily.

4) Reasoning is a review of what you think you have done. This is caused by having a love for the work that is already done, doing it with determination, anxiousness and responsibility by using wise and careful judgment Thus leading to a self-review and review the organization or review the working process review what you think, what has been done in the past and how it works, good and bad. both of which are our own personal matters and are a matter of joint thoughts and actions with other people. In order to improve, adjust for the better.

Therefore, the principle path of accomplishment is meaningful to everyone who wants to travel toward success in life and work. because if the process has been completed

knowledge society, knowledge community and individual knowledge probably not far beyond the dream. And the most important thing is the principle path of accomplishment does not arise in isolation from other principles. Which is holistic and connected they just describe different roles. What matters is how much do we reflect on these matters? This means that we have to train ourselves many times in order to truly understand and approach the principles that give rise to the development of ourselves.

VI. CONCLUSION

Producing teachers in order to have good teachers with quality and spirit of teachers is If only studying the theory, it would not be possible to solve the problems of education. Therefore, adequate practical training is required. until being able to perform the teacher's duties well, have confidence and confidence in the work that will lead to love, True faith in the teaching profession. Teacher experience training is a practical process. It is like the heart of teacher production. It is a very necessary and important experience. Because it is an important time for students and teachers to examine themselves by applying the theory that has been learned in various subjects, how appropriate to apply to practice It is an important opportunity for students to practice their experience under the guidance of a mentor. Supervisors got to know students. They have practiced working together with fellow students and related personnel in the school and the community. Practice responsibility, patience, interpersonal relationships with others as well as being able to develop themselves to be better in every area

Therefore, the professional teaching experience is the process of organizing learning activities. Teaching performed jointly between the university and the school to provide students with the knowledge, skills, and attitudes necessary to practice the teaching profession and be qualified to meet the school's needs. Able to behave appropriately and keep pace with modern technology. In general, the management of higher education aims to produce manpower. and human development at the high professional level according to the following six important characteristics

- 1) To have public service awareness, there is a commitment to professional duties.
- 2) having knowledge and skills that are beyond the ordinary understanding of the general public
- 3) an extended time frame for practicing teacher proficiency.
- 4) Independence in making decisions in the scope of the specified work
- 5) The organization controls the standards of professional licensing.
- 6) Teachers have a code of ethics as a framework for their

professional practice.

And the principle path of accomplishment, a way to work for success that appears in Buddhism's doctrine, consists of 4 practices: aspiration, exertion, thoughtfulness, and reasoning that anyone can memorize. But how many people will be able to complete all four processes, which all four steps are continuous? Mutual support cannot be lacking any of the above it will enable us to be successful in life and work as expected.

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Administrating Organizations for the Organizational Justice

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Abstract— This article is about implementing management and management principles to promote fairness in the organization to understand how to manage it in a process. It refers to the process that takes the decision and policies to practice for the justice and the best interest of the organization or society without conflict with universal morality and ethics. Bringing both material and human resources for management is to achieve the stated objectives and makes the organizations developing a process for promoting fairness in the organization through equal participation from all parties in the organization that does not violate laws, regulations, traditions, lifestyles, Individual differences, and universal morality and ethics

Index Terms— Administration, Management, Organizational justice

I. INTRODUCTION

Management is based on the human nature as a social animal, which must coexist as a group. There must be a group leader and a direction or method of supervision within the group to achieve happiness and peace. This may be called management and administration, respectively. Therefore, where there is a group there, it is managed which is from the past to the present, the wave of world in the political, economic and social change has changed dramatically. Especially in the past three centuries from agricultural society to industry and information technology age which can be divided as follows Agriculture age, socio-economic conditions are traditional societies, agricultural production, cultivating and raising animals which are relying on nature, a simple and uncomplicated society, a period of the past until before the Industrial revolution.

Industrial age, the steam engine was developed into the machine to be used as a production power instead of human labor and animals, generating a lot of production power. Social conditions shifted to marketing and consumerism moving towards modernity. The social conditions are increasingly complex. It was three decades before the present. Information technology age, computer systems have been linked to telephone and fax systems for all over the world, a world without borders. Communication is fast and the age of globalization has changed so much that people in society are not able to adapt to the wave of changes in the world society

(Future Shock) as the century ago from the past to the present. Globalization is an era of rapid economic and social change. With the power of information technology (IT), which has resulted in a global phenomenon without borders, free economy, transnational business and global village. The phenomenon led to the transformation of the organization from a large organization to a small one, reducing work processes, reducing used documents, reducing the number of personnel. There is an organizational competition to meet the needs of the customers. Management evolution in the past to present, the management of the organization has adjusted the principles of management theory in order as follows:

A. Administration Definition

Tin Pratyaprit looks at management in a process. It refers to the process that takes the decision and policies to practice. Public administration refers to the implementation of public policy (Tin Pratyaprit, 1992).

Paiboon Changrian said the administration is a system that consists of a process for bringing both material and human resources into action in order to effectively achieve the stated objectives and effectively (Paiboon Changrian, 1989)

Boonthan Dokthaisong believes that the administration is the most efficient management of available resources. This is to meet the needs of individuals, organizations or countries, or to manage for the profit of everyone in the organization. (Boonthan Dokthaisong, 1994)

Wiroj Sararatana said that the management is the operational process in order to achieve the goals of the organization with an important administrative function which is organizational

management, planning, monitoring and controlling (Wiroj Sararatana, 1999)

In summary, management means social processes of two or more people working together or in an activity to achieve the stated objectives with relying on appropriate processes, resources and equipment. Therefore, management is a process that management has to use "science" and "arts" to lead organizations or agencies to work together for achieving success, the objectives are set appropriately for the situation. However, the author of the article sees the elements of good management that must be considered indispensable, namely the personnel in the organization. Because of personnel are key machine in driving tasks or missions in the organization to achieve goals. If it is managed without being fair, the task or mission of the organization is hard to achieve its goals.

B. Management definition

The Dictionary of the Royal Academy Year 1999 (1999: 298, 609) provides the meaning that management refers to the work orders, the job controls and the work operations.

Derak French and Heather Saward defined management as "a process, activity, or education in relation to the performance of a duty in order to be convinced that activities, various operations are carried out in a way that will accomplish the stated objectives.

Henri Fayol (Fayol, 1949) describes management as a process that consists of five key steps: planning, organizing, supervising, coordinating and controlling.

Sakorn Suksriwong (2008: 26) said that the management refers to work to achieve organizational objectives through various management activities, which include four main activities: planning, organizing, guiding and controlling the organization.

Netrapana Yawirat (2010: 2) said the management is a process that administrators follow in order to achieve the goals of the organization with relying on human resources and administrative resources. When said overall, management is the act of achieving the objectives of the organization through various activities based on human resources and administrative resources.

It can be concluded that management refers to the strategy of implementing management processes namely planning, organizing, personnel organizing, directing and supervising which is to manage limited resources resulting in the organization to achieve its objectives or goals.

II. ORGANIZATIONAL JUSTICE THEORY

Social justice is a concept that raises questions about how the social benefits or allocation of social resources is allocated to the population in that society that is fair to all members of

society or not. Concept of social justice is one of the most discussed social science concepts in an era of blossoming democracy and the people have more political experience as they are today.

In addition, the concept of fairness is appropriate to be used in questioning policies and ways of thinking in solving problems of society as a whole. (Wichaya Komin and Borworn Sapsing: 2014).

Organizational Justice Definition

Fairness in the organization is concerned with the perception of justice in organizations that have rules and social norms that are governing them, taking care of the allocation of rewards (Both in reward and punishment) that personnel should be received and includes a decision-making process to allocate returns, other decision making and interpersonal treatment (Folger and Cropanzano, 1998, p.preface) which is consistent with the Buddha's personnel management. The Lord Buddha used the government of the Sangha by suppressing the person who should be suppressed and praise those who deserve praise.

Anand Panyarachun (2010) has given the meaning of fairness in the organization that it refers to a balanced income distribution, an equal in access and equal in opportunity. There is no social exclusion and it is imperative to acknowledge the righteous requirements and listen to the voices of the various groups in society.

Russell, David & Stephen, (2007) imparted fairness in the organization: Fairness in organizational management is to assess personnel who live in administrative morals and ethics. When this principle is followed, fairness can be created but must also rely on the approval of the personnel. First of all, we will give the definition of fairness by taking into account three key principles: fair income distribution, fair processes, and fair their relationship with each other.

Dale A.Spartz. (2002) Organizational justice is the fairness obtained from the relationship of the elements that take place in the organization whether it is social or economic and involves the relationship between the individual and the supervisor, subordinates, colleagues and organization as a social system. It consists of various fairness groups, including fairness in the interests of the organization, fairness in the process and fairness in the interaction between organizations both on the social side and economic.

Brenda McMahon (2007) said the meaning of organizational fairness is the structural concept of human society at the organizational level that is truly valuable Which has to be argued for inequality as a result of unequal relations with power and calls for social change in order to overcome these inequalities.

Fairness in the organization is important to enhance the performance of personnel within the organization. Nowadays, organizations are generally used in personnel management, employment, appraisals of performance, rewarding. In this regard, the fairness of management encourages personnel in the organizational commitment to work to the best of abilities, promoting relationships within the organization based on trust, reducing conflicts as well as adjusting the working behavior to satisfy the satisfaction of the service users. Fairness is a concept based on an individual's belief that benefits are greater than the objectives of an organization's operations but it is related to the leadership of the organization's executives, especially in the dimension of morality and ethics in organizational management of the leader. (Russell, David & Stephen, 2007)

Fairness in the management of any organization must enhance the value of the work, working behavior, especially the independence of thought, creating equal opportunities in work life as a relative result to the defined individual conditions. (Lumby & Coleman, 2008) Fairness promotes work for the whole. (Stephen & Erin, 2012) Therefore, it can be concluded that the elements of social justice consist of beliefs, attitudes, value of individuals, work behavior and management behavior and may take the form of principles, processes, management method. (Maureen & Joseph, 2010)

In addition, the concept of social justice is also linked to other activities in society besides the political situation, economic activities, education and occupation of majority people in society. The reason is because of the inequality, society considers it an inequality that is a major source of conflict and community society lacks unity which is difficult to manage success in the organization and society.

Therefore, the most important factor is the foundation for the creation of fairness in society. It is necessary to use mechanisms to create opportunities for the majority of members of the society in the organization to participate in the benefits that will arise from the management of the country, society, organization. (Kittisak Phromrak and Yubolwan Tanjeararat, 2010) The selection of appropriate methods in line with the way of life of the community is crucial to the maintenance of fairness in the society. (Wuttichai Saiboonchuang, 2011).

Summary of the concept on organizational justice

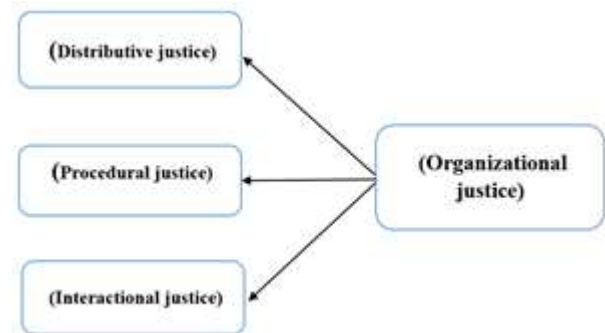


Fig.1 The picture shows the elements of the concept of organizational justice. (Sub-Concept of Organizational Justice)

III. DEFINITION OF DISTRIBUTIVE JUSTICE

A definition of income distribution towards the definition of fairness in society, relationship with benefits, receiving compensation from participation in any situation-based work activity assigned by the organization's administrator. Individuals have expectations for a definition of fairness that may be compared to the value of work, self-sacrificing behavior, patience and persistence in the work. Including the achievement of working goals. Therefore, the definition of fairness in the society at the corporate level is directly influenced by individual beliefs, attitudes, values, perception, acceptance, compliance (Wendy, 2007; Maureen, 2010).

Andrew J. Lee, (2007) describes the distributive justice definitions as fair distribution in the organization and related to the performance of each person such as salary, benefits and added as expenses.

Wiroj Jedsadalak, (2010) imposes fairness as the perceptions of the benefits received from the organization in different ways whether it is amount or obtaining other useful opportunities such as promotion etc.

Folger and Cropanzano, (1998) said the distributive justice is a fair view of the number and allocation of rewards between individuals.

Wendy L. Poole, (2007) said the distributive justice means recognition of equality which is tied to the distribution of resources or distributing income evenly and thoroughly.

Definition of the legitimacy of the income allocation of persons; Is influenced by external impulses which mixed with personal opinion, especially learning social experience work experience as well as perceptions of conflicts social injustice to interpret set as a variable of expectation each person expects to be justified by being in a group and expects the benefits that each person should receive from participating in a group activity (Yeh, 2006).

Defining the fairness in the income distribution in the organization as a result, the society presents issues of improvement. Like being equal and equal being given opportunities according to human rights and being fair and not partial, equal treatment from the state and equal protection under the law, no persecuting and non-violate each other's rights, transparent and no taking advantage of each other. (Wuttichai Saiboonchuang, 2011)

Meaning is based on social conditions, political context and important philosophy of the people which was used for life affecting the state of conflict or the atmosphere of community harmonious which is a fundamental concept in Buddhism for applying to human activities in general. (Michael, 2009).

The concept that values all life, all human beings who live in the world have equal human values, dignity, and equality in social, economic and political opportunities (Gary & John, 2010). Finding the right answer to social justice requires a perspective of their own in the perspective of a group (Drew, 2009).

Fairness according to Buddhist concepts emphasizes the meaning of the law of karma. All life is subject to the principles of birth, life and death. (Inwon, Samuel & Pierre, 2006).

Conclusion of Distributive justice

Distributive justice means fair income distribution, equal recognition which is tied to the distribution of resources or distributing even and equal income (Wendy L. Poole, 2007) that relates to the performance of each individual, such as salaries, benefits and added to expenses. (Andrew J. Lee, 2007) or the perception of fairness to the interests of the organization. In different ways that is the amount or receiving other useful opportunities such as promotion, training to increase potential, etc. (Wiroj Jesadalak, 2010).

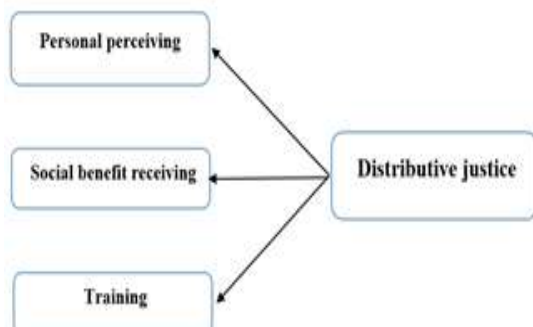


Fig.2 Illustration of variables observing income distribution fairness.

1) Personal perceiving refers to an individual's perspective on living conditions, economic position, rights and freedoms obtained from coexistence with other members of a community organization, society, to be interpreted as

equality. Social differences (Drew, 2009) Equality under the Law of Karma (Inwon, Lee & Pierre, 2006; Stephanie & Erin, 2012)

2) Social benefit receiving means receiving a share from the community organization, society, receiving public services. Benefits that most members of society receive gaining educational opportunities, learning, accessing services provided by a social community organization as a member of a social community organization (Maureen & Marshall, 2009; Freyedon, Morteza & Zeinab, 2011)

3) Training means participating in developing knowledge, work skills training, human relations, management skills, dissemination of teachings according to the development program curriculum in both formal and not official for applying to work within the organization to develop the organization to achieve results and goals in promoting an atmosphere of fairness in society (Phrakhrupisanthiratham, 2010; PhrakhruPhairotsarakhun, 2010) and peaceful community. (Yeh, 2006; Drew, 2009)

IV. PROCEDURAL JUSTICE DEFINITION

Greenberg (1990) has defined process justice as the employee's perception of the process by which award is made to employees. This is called consistency, elimination of prejudice, fairness and ethics. Employees will accept uneven compensation if the organization has shown them that the process by which the organization makes decisions on the return there is justice.

Wiroj Jedsadalak (2010) has defined process fairness as perceived in process justice. This is a formal process for making decisions about assignments and allocates results or benefits in different ways.

Russell, David & Stephen (2007) imposes fairness in the process of being allocated benefits but it is not specific to the benefits that will arise for oneself alone. But justice in the process sets out some principles based on the knowledge of the people within the organization including the participant's governing role in making decisions in the ongoing process.

Wendy L. Poole (2007) imparts justice in the process that from this point of view, it means fair work processes. Just a decision-making perspective is one of those processes that results from a procedure that is justified.

Andrew J. Lee (2007) said justice in the process refers to fairness in the official corporate policy and it is also a method of determining organizational results.

The organization or community organizing activities in a public manner encourage all members of the organization to participate in corporate social responsibility, to encourage everyone to show their knowledge and the individual's ability to protect the prosperity of society. By performance

responsible for work according to the position and function according to the knowledge and ability. Everyone has the right opportunities for personal development to progress in the position of duty performance receive rewards when performing well. They always punished like any other member of society, all show clear pictures of working behaviors that promote fairness in the organization (Panayu Chairattanon, Sakarin Saephu and Natthawut Asawakovitwong, 2011)

Procedural fairness is essential to the management of modern organizations. Both in the category of government agencies, private organizations, religious organizations, especially the temple, which is a non-profit organization. They emphasize on promoting transparent management efficiency for all members of the organization. It is important to declare policy clarity, practice, as well as the realization of human rights, freedoms and equality. And is integrated into a key technique in managing corporate success (Ramin, 2012)

Modern organizational management focuses on the importance of reducing conflicts within the organization. Building Confidence and Faith Encourage Personnel to Improve Work Efficiency Adjust working behavior by creating fairness in the organization. (Russell, David & Stephen, 2007) Because organizational fairness is a rebalancing of practice-focused work (Patricia, 2007)

Conclusion of Procedural Justice Definition

Procedural justice refers to the employee's perception of the process used to determine the payment of awards to employees. It is called consistency, elimination of prejudice, objectivity and ethics. Employees will accept unequal rewards if the organization shows them that the process by which the organization makes decisions about rewards is fair. (Greenberg, 1990) How the benefits were allocated is not specific to the benefits that will arise for oneself alone but process justice also stipulates some principles based on the competence of the organization (Russell, David & Stephen, 2007)

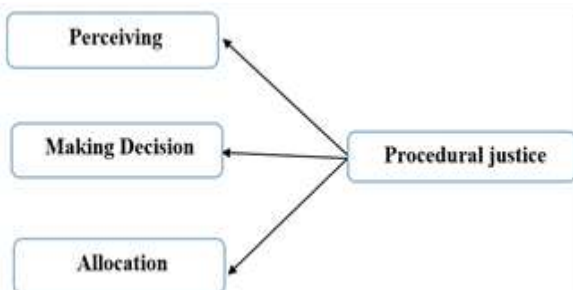


Fig.3 Variable illustrations observe process fairness.

1) Perceiving refers to devotion to self-sacrifice for the benefit of the organization, responsible for performing duties from the use of knowledge, work skills, coordinate

cooperation from colleagues, outside agencies to aim for the organization to be successful in its operations without taking advantage of others, accept and comply with the organization's rules, recognize the human dignity of everyone in the organization (Gary & John, 2010), working equally well with others (Martin, 2004).

2) Making decision refers to the right to choose to exercise one's capacity to perform an opinion work, accepting social truths, analyzing the problem, offering solution to problem solving, coordinate work, creating a system that promotes an equality atmosphere, everyone has a choice, resilience meets individual needs, in harmony with the whole (Keiko, 2005), advocating for independent living (Rolla et al, 2010), refusing to resist violence in solving problems (Yeh, 2006).

3) Allocation means that all members of the organization have equal opportunities to receive essential basic services from the organization, having the right to freedom of attendance, expressing opinions, presenting opinions, organizing public relations, requesting and negotiating when considering someone has not received fairness from the organization, organization leader, corporate executive, other members of the social community organization (Pinit lapthananon, 2010)

V. INTERACTIONAL JUSTICE DEFINITION

Andrew J. Lee, (2007) has interpreted justice in interactions as maintaining interpersonal relationships that employees receive from their supervisors in the implementation of the policy and organizational methods.

Aurier & Siadou-Martin, (2007) implies interaction fairness as dealing with interpersonal behavior in the procedural and dispatch regulations and result, a component of correctness is fair, dealing with the aspects of human behavior that need to be communicated and also what is characteristics such as honesty, politeness, care, subjective and honesty. Studies on service delivery have shown a strong relationship and importance that employees who communicate with customers should be polite, there is a response with the customer, providing useful information not only after an interaction but after another interaction for example during a complaint or a simple response.

Bobocell & Holmvall, (2001) has interpreted interaction fairness as perceiving organizational justice in the interaction between organization and employees. It means that employees perceive that their supervisors are sincere, respectful and respect the rights of employees equally. Provide correct information of the organization equally true and complete and do not discriminate.

Russell, David & Stephen, (2007) said the fairness in interaction is how people are treated with one another. A person who can interact well with each other is either his or

her relationship will be in the manner to share information appropriately and will avoid words in communication that are not beautiful or violent against each other.

Dale A. Spartz, (2002) said the meaning of interaction justice is the predominant behavioral trait of individuals that make justice assessments based on the qualities they derive from maintaining strong interpersonal relationships.

The management of the monastery needs to be revised to be up-to-date on the issue of improving the management efficiency with relying on the key mechanisms of demonstrating administrative behavior through command power, management techniques, including the leadership of the monastic leaders in the temple boundary, it is a tool to drive the community to promote fairness at a broader level. Encouraging and supporting Buddhist monk in the monastery to have a socially acceptable working behavior, persuading to exhibit monastic behavior to guide the society to be peaceful (Thitipaun Sasom, 2010) to reduce social conflicts, promoting people to realize the importance of human dignity according to the Buddhist concept. (Phrakrupisanthiratham, 2010)

Conclusion of Interactional Justice Definition

Interactional fairness is necessary for the management of the temple to create a fair atmosphere which is related to administrative behavior. This managerial behavior is determined by two important factors: education, training and management experience, therefore, those who will be executives should be those who have received administrative training first to help him thinking of the management as. In addition, management must have skills or abilities in the concept, human relations and some technical aspects as well In order to enhance the management capability to be higher, thus reducing conflicts and helps to create unity among the group (Phrakrupisanthiratham, 2010)

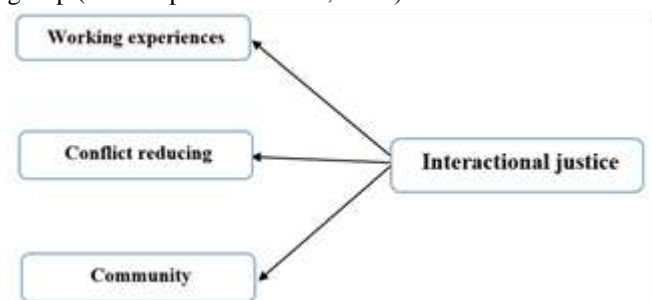


Fig.4 Illustration of observation variables on interaction fairness.

1) Working experiences refers to the length of time to join and perform work in the organization, the number of times we have worked with the group, board membership, making decisions, joining in human rights work, human dignity, social

benefit sharing, creating equal income promotion opportunities in social community organizations (Stephenie & Erin, 2012; Ramin, 2012). or is it the number of times The frequency of social justice work, participation in activities, doing a project on the equality of the people, human dignity, commenting, giving feedback, working against conflicts within a social community organization, asserting their rights (Inwon, Samuel & Pierre, 2006; Drew, 2009).

2) Conflict educing refers to functional functions and ability, taking responsibility for decisions within the scope, listening to different opinions, ready for a change, presenting work practices that promote unity among the faculty, having communication skills, coordinating the differences of the members of the organization, heading for the organization to have an equality atmosphere, justice without discrimination (Virawit Kongsak, 2010; Kulpa Wajanasara, 2012)

3) Community harmonious means that all members of the community organization participate in promoting synergies, everyone has the right to express their opinions, discussing key points, taking responsibility for performing work that affects the public, taking part in policy decisions and regulations of society, communities, and organizations for the purpose of a peaceful coexistence atmosphere (Thammasat University, 2009; Panayu Chai rattananon, Sakarin Saepu and Natthawut Asawakowitwong, 2011)

VI. CONCLUSION OF ORGANIZATIONAL JUSTICE

1. Distributive justice namely 1) Personal perceiving 2) Social benefit receiving 3) Training)
2. Procedural justice) namely 1) Perceiving) 2) Making decision 3) Allocation
3. Interactional justice) namely 1) Working experience 2) Conflict reducing 3) Community harmonious

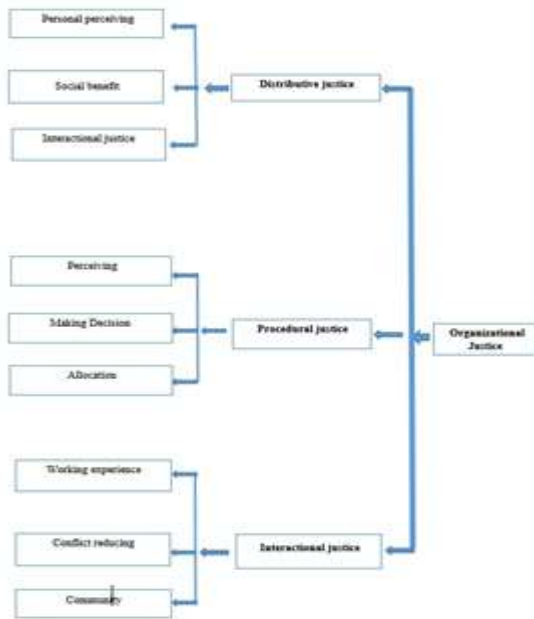


Fig.5 Composition of fairness in the organization

Guidelines for the implementation of administrative and management principles to promote fairness in the organization

In this article, we will present the concept of fairness: equality in the form of Rawls. There are two points: 1) each person must be allocated an equal set of fundamental rights and freedoms. It is a complete and sufficient set and fits the same set of rights and freedoms of all other people. 2) Socio-economic inequality can arise only when two conditions as follow: 1) Positions and duties must be open to all under the terms of fair equality of opportunity 2) This inequality must be in the interests of the greatest number of disadvantaged members. There are steps for applying these two principles (Tao Zhang, 2011) 1) agreeing on the principles of fairness 2) jointly drafting a principle or a community contract 3) establishing a regulation related to a set of contracts. 4) Follow the established rules and regulations and review fairness in all situations.

Summary of implementation of management principles and management to promote fairness in the organization 1) understanding how to manage in a process. It refers to the process that brings decision making and policies to practice for the fairness and the best interest of the organization or society without conflict or conflict with morality. Global ethics, 2) access to management methods and bring material and human resources to be implemented in order to achieve the stated objectives, 3) developing a process for promoting fairness in the organization through equal participation from all parties in the organization that does not violate laws, regulations, traditions, and way of life. Individual differences

And morality and ethics which are universal which can summarize the diagram as follows

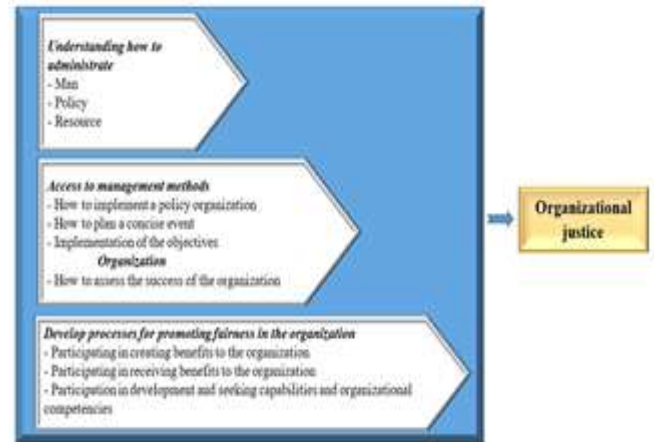


Fig.6 A picture of the implementation of administrative and management principles to promote fairness in the organization. Developed by Phramaha Wiruth Wirojano and Chanathip Sritho

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The Guidelines for the Development of Desirable Student Characteristics according to the Navaluk Framework of Buddhapanya Sri Thawarawadee Buddhist College

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Abstract— *The purpose of this study is to examine the guideline for student characteristics following the Navaluk framework of the Buddhist interrogation of Buddhapanya Sri Thawarawadee Buddhist College. These mixed methods research the first part will be quantitative Research, using Survey Research Methods. The sample group used in this research was students of Buddhapanya Sri Thawarawadee Buddhist College who are studying in grades 1-3 with 205 people by opening Taro Yamane sample size table, the data was collected from the sample. All questionnaires were analyzed and processed by the researcher using the statistical package for social science research using the following statistics: frequency, Percentage, mean and standard deviation. This qualitative research with in-depth interviews with key informants and analytic induction. The findings were as follows: The development of student characteristics follows Navaluk framework of Buddhapanya Sri Thawarawadee Buddhist College 9 aspects are (1) There is an honorable path. Students are also encouraged to behave in strict compliance with the good. (2) Knowingly social change. Students need to understand the real tricks to learn. (3) Faith Dedicated to Buddhism Students should have knowledge and understanding of the tenets of Buddhism and students should be involved in the propagation of Buddhism to young people. (4) The ability to solve problems. Students have to know the main reasons for solving problems and obstacles. (5) They are keen on knowledge, which students must be able to analyze problems and learning barriers. (6) Being generous and sacrificing for the common good. Students should be considerate and advise their classmates. (7) Having a wide world view which students must recognize and accept the opinions of others. (8) There are psychological and intellectual leaders. Students must have knowledge and leadership development to friends in class. (9) Is committed to the development of their moral and ethical base. Students should focus on how to develop morals and ethics*

Index Terms— *Student Characteristics, Navaluk Framework, Buddhist integration*

I. INTRODUCTION

Education is an important tool in building people, building society and developing the country. It is a reflection of the care of the parents, educational institutions and the government who are trying to improve the quality of education. This is because education plays a key role in building a nation's advantage to compete and stand on the world stage under a dynamic economic and social system. Developing potential and competencies of Thai people to have skills Knowledge and competencies that are consistent with the needs of the job market and national development Able to compete properly with neighboring countries Or according to the ability of the learners to live life[1] under

external pressure from globalization. And the pressure within the country is a crisis that the country has to face. Causing the way of people to change, adjustments that are inconsistent with the traditional foundations of people in society, especially Thai society, problems that cause social deterioration at present.

Desirable characteristics of graduates in morality Ethics is a very important aspect of graduate production. Ethical and ethical development is an important issue and needs to be developed urgently. People development from the past to the present is the training of the mind by applying the principles and teachings of Buddhism to develop. Application of innovative media technology Change the model of learning management. So that those who are interested can easily access and can learn by themselves. because Buddhism teaches them to develop themselves as a preliminary and then

continue to develop others. By designing the curriculum taking into account individual student differences. This includes both the physical and mental preparation of teachers and students. Self-directed learning or creating opportunities for students to be creators.

Buddhapanya Sri Thawarawadee Buddhist College is a public higher education institution that plays a role in the provision of Buddhist education and higher education. This institute aims to produce graduates of international quality and standards, creating academic excellence in Buddhism, promoting research, providing academic services to society, promoting arts and culture and promoting Buddhism. In the field of graduate production, the institute realizes the importance of developing students at all levels continuously because they believe that the student is an important factor that will lead to long-lasting prosperity. Buddhapanya Sri Thawarawadee Buddhist College has set a goal to produce and develop graduates with desirable characteristics.

Students who are well-rounded in Buddhism must have appropriate qualifications and have a guideline for self-development [2] following the Tri-Sikkha principle as the Buddha said. "Concentration with precepts will have great results and merit. Concentrated wisdom has a lot of results and virtue. A wise mind truly escapes from ignorance". The threefold is a Buddhist doctrine. All Buddhists should take action to develop themselves for a good life and prepare for the conditions of life, society and environment including the characteristics of various relationships in a state that is appropriate and ready for living, practice and perform various actions for maximum success whether it is the goal of individuals, organizations, communities and society. The development of student characteristics according to the Trisikkha principle must be developed both physically, mentally, and intellectually.

Hence, this study "the development of student characteristics according to the Buddhapanya Sri Thawarawadee Buddhist College's novelty conceptual framework" will serve as a guideline for enhancing the desirable characteristics of the graduates in terms of morality, ethics and further promotion of the mission for the administration of Buddhapanya Sri Thawarawadee Buddhist College.

II. RESEARCH OBJECTIVE

To examine the guideline for student characteristics following the Nawaluk framework of the Buddhist interrogation of Buddhapanya Sri Thawarawadee Buddhist College.

III. LITERATURE REVIEW

Development refers to a change that has been done or planned. This change must be in a better direction. If it changes in a bad way It is not called development at the same time. Development does not mean only increasing the number of goods or income of the people, but also increasing the satisfaction and Increase the happiness of the people as well The threefold is the process of developing human beings to live a good life. There are 3 aspects of self-development in a holistic manner: precepts, good physical and verbal behavior. It does not cause trouble for oneself and others, including for the peace and order of society, including physical and verbal behavior that is supportive to oneself and society. Consumption with wisdom Honest occupation And the establishment of rules for a happy coexistence in a meditative society is to force one's mind to be in a beneficial and ready state for work. And happiness and wisdom are the training to create knowledge and correct understanding, such as rational beliefs, thinking, examining knowledge and understanding. Applying knowledge to solving problems an opinion that is correct according to reality Trisikha consists of the following elements [3].

Desirable Characteristics of Higher Education Students Indeed, it is only part of practicing yourself according to the principle of threefold. With an emphasis on the context of pursuing knowledge and careers which corresponds to the duties during the age of students since the development of people according to the three-fold principle have many sub-traits. And some characteristics do not correspond to the age range of the person the researcher wants to study Therefore, the researcher determined the scope of the study of the characteristics according to the threefold principle Using desirable characteristics of tertiary students to determine the scope to suit the age range of tertiary students.

IV. METHODOLOGY

Research on the quantitative character development of students according to the novelty framework of Buddhapanya Sri Thawarawadee Buddhist College was done to determine the achievement of the development of good student characteristics of Buddhapanya Sri Thawarawadee Buddhist College according to the novelty graduate framework.

A. Population and sample

The key populations and informants in this study were: 205 samples of Buddhapanya Sri Thawarawadee Buddhist College, Mahachulalongkornrajavidyalaya University studying in Years 1-3[4].

The sample used in the quantitative research for the study was to identify the properties of the target population specifically,

which was Buddhapanya Sri Thawarawadee Buddhist College, Mahachulalongkornrajavidyalaya University. The sample size was obtained from a population of 205 people according to the formula of Taro Yamane [5] with an error level of 0.05.

Sampling Method: The sampling method was stratified random sampling, which consisted of the following steps. The sample size was proportional based on the population to obtain distributed data, action with the proportion of the population of the four places and grading in a proportional sampling using the formula. Therefore, a sample of 136 people was obtained.

The variables used in the quantitative study were:

1. General information of the respondents was gender, marital status, age, level of the year.
2. Development of student characteristics of Buddhapanya Sri Thawarawadee Buddhist College according to the concept of novelty graduate.
3. Development of Student Characteristics of Buddhapanya Sri Thawarawadee Buddhist College according to Trisikha Principle

B. Tools

The tool used in this research was a questionnaire. The researcher developed a tool based on the student character development framework of Buddhapanya Sri Thawarawadee Buddhist College to collect data from the sample used in the research.

1) Process of creating tools

The researcher had studied the method of constructing the tools in order as follows. First, the study of principles and theories; second, the study of documents, theories and researches related to the development of student characteristics based on the novelty framework of Buddhapanya Sri Thawarawadee Buddhist College based on ideas, theories, papers and research results that have been conducted by the research; third, the conceptual framework for creating research tools with setting objectives for creating research tools by consulting an advisor, fourth, creating tool for presenting the draft of research tools to advisors and experts for review and revision; fifth, applying the research tool to a population similar to that of the population sample to be researched to determine the accuracy coefficient of the tool; sixth, revised and published the complete questionnaire and finally, it was applied to collect data with the sample.

2) Quality of tools

(1) **Validity:** The validity was determined by presenting the completed questionnaire to the chairman and the research advisor for approval and presented to the experts and then

taken to improve accordingly. In this regard, all 5 persons would be considered both the content and structure of the question, the form of the questionnaire, as well as the language used. Index of item objective congruence (IOC) was the quality examination of the instrument and had an IOC index from 0.8 to 1.0. [5]

(2) **Determination of the confidence value:** The researcher tested the questionnaire on a sample group and a group of non-sample groups used in the research of 30 people, after that, the reliability test was performed by calculating Cronbach's alpha. The confidence of the whole questionnaire was 0.976.

The researcher had collected the data according to the following steps.

1. In the collection of papers, researchers would collect information from books, articles, research papers and various publications related to the development of the Buddhapanya Sri Thawarawadee Buddhist College student characteristics based on the novelty conceptual framework.

2. The researcher completed a questionnaire and requested a permission letter for data collection from the Director of Buddhapanya Sri Thawarawadee Buddhist College for the cooperation of the students. After that, data collection was carried out.

3. The researcher collected the data by distributing questionnaires to the target group, namely 136 students of Buddhapanya Sri Thawarawadee Buddhist College, Mahachulalongkornrajavidyalaya University. In distributing questionnaires, the researcher distributed the questionnaires and collected the data by themselves.

C. Data analysis

When the data from the questionnaire was completed, the researcher checked the completeness of the questionnaire and then analyzed the data by a computer software program as follows: validation of the integrity of the returned questionnaire and then sorted out the incomplete query, leaving only the perfect query along with the coding form by key points and each item was scored according to a 5-level classification by interpreting the meanings into intervals. Once the scoring criteria were known for each level and the mean of each issue, the researcher used statistics to analyze the data which consisted of frequency, percentage, mean (X), Standard deviation (S.D.)

V. RESULTS AND DISCUSSION

Personal factors could be summarized as follows. In terms of **gender**, the majority of respondents were 95 males (69.9%), 41 females (30.1%). In terms of **status**, most of the respondents had 71 householder status (52.2%) and 65

(47.8%) religious status. In terms of age, 52 respondents were under 30 years old (38.2%), followed by 45 respondents aged 31-40 years (33.1%), 23 respondents aged 41-50 years old (16.9%) and the smallest number of 16 respondents aged 51 and older (11.8%). At the year level, 54 respondents were mostly at Year 3 (22.8%), followed by 79 respondents with Years 51 or more (20.1%) and 19 respondents less than 10 years (7.4%).

The development of student characteristics of Buddhapanya Sri Thawarawadee Buddhist College according to the novelty graduate framework

The development of student characteristics of Buddhapanya Sri Thawarawadee Buddhist College according to the novelty graduate framework as shown in Table 1.

Table 1 Mean, standard deviation and degree of opinions on the development of student characteristics of Buddhapanya Sri Thawarawadee Buddhist College according to the novelty graduate framework as a whole.

The development of student characteristics of Buddhapanya Sri Thawarawadee Buddhist College according to the novelty graduate framework	Level of opinion		
	\bar{X}	S.D	Results
1. Having faithful practices	3.68	0.83	High
2. Being cognizant of social change	3.67	0.86	High
3. To have faith and devotion to Buddhism	3.71	0.91	High
4. Problem-solving ability	3.70	0.84	High
5. Having knowledge and thinking	3.73	0.81	High
6. Self-sacrifice	3.85	0.83	High
7. Having a broader world view	3.84	0.81	High
8. Having psychological and intellectual leadership	3.77	0.79	High
9. To be committed to developing oneself with morality and ethics	3.83	0.80	High
Total	3.75	0.83	High

From Table 1, it was found that the student characteristics development of Buddhapanya Sri Thawarawadee Buddhist

College according to the novelty graduate framework in 9 aspects, the overall mean of 3.75 was at a high level. When considering each area in detail, it was found that self-sacrifice was the highest, the mean of 3.85 was at a high level, followed by the broader world view, the mean of 3.84 was at a high level and social change awareness, the mean of 3.67 was at a high level.

The development of student characteristics of Buddhapanya Sri Thawarawadee Buddhist College according to the novelty graduate framework, overall, was found to be at a high level. When discussing the results by side, it was found that all 9 aspects were at the very same level and the mean was 3.75. Therefore, it showed that the student characteristics of Buddhapanya Sri Thawarawadee Buddhist College according to the novelty graduate framework were developed. Students were adapted and accepted to their surroundings at present. Students had objectives and principles that keep up with the student situation and could help them cooperate with their classmates. In line with the research of Rittipon Chaiburi [6] found that the personality of the performance was the responsibility of the assigned work, the enthusiasm for the work, the diligence and the good membership in the team, modernity, up-to-date, curiosity, tact, appropriate dress, reliability and leadership, radiance, selflessness, modesty, tact and generosity [7]. In line with the research of the relationship between colleagues was positively correlated with work cooperation. Goal setting had a negative correlation with work co-operation using the principle of approval and consideration [8].

Therefore, the development of student characteristics of Buddhapanya Sri Thawarawadee Buddhist College according to the novelty graduate framework helped to encourage students to have mental health in developing good morals along to learn to develop morals and conduct as a good example.

VI. CONCLUSION

The Development of Student Characteristics following the Nawaluk Framework of the Buddhist integration of Buddhapanya Sri Thawarawadee Buddhist College are 1) Compliance Methodist University Sets a good example for both the mind and the intellect with moral and ethical precepts is to behave well. There are moral and ethical principles 2) protecting and preserving Buddhism Help others with heart forgive, open awareness, listen to other people's opinions with mindfulness. The concentration stage is to develop the mind, perception, and listen to new ideas consciously 3) Researching things. Circumstances, both secular and religious analysis, problem- the solving process has wit, learning analytics solutions to the prevailing conditions.

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Development of Strategies for the Use of Innovative Information in Education for Secondary Schools under the Office of the Basic Education Commission in the Eastern Region

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Abstract— This research paper aims to 1) Develop strategies for using innovative information for education for secondary schools under the Office of the Basic Education Commission in the Eastern Region. A multidisciplinary study of 6 schools, a semi-structured interview tool, frequency percentage statistics, and a meeting of 11 expert groups. By finding the consistency or index of consistency between each question and the purpose (IOC). The results of the research revealed that the development of innovative strategies for educational information for secondary schools under the Office of the Basic Education Commission in the Eastern region consisted of 8 strategies, 32 projects / activities, 80 indicators as follows: There were 4 projects / activities 10 indicators 2) Strategy for using innovation information for education with 4 projects / activities 10 indicators 3) Instructional management strategy with 4 projects / activities 10 indicators 4) The learning process strategy has 4 projects / activities, 10 indicators, 5) Resource strategy in learning management. There are 4 projects / activities, 10 indicators, 6) Network strategy for information technology cooperation. Projects / activities 10 indicators and 7) Strategies for promotion and development of personnel: 4 projects / activities 10 indicators 8) Promotion strategies and educational media have 4 projects / activities 10 indicators.

Index Terms— Strategy Development, Information Innovation, Communication for Education, Secondary School, Under the Office of the Basic Education Commission, Eastern Region

I. INTRODUCTION

Innovation is important to many studies because in the globalized world the world is changing rapidly in all areas, especially advances in both technology and information. Education therefore needs to be developed to change from the existing education system to be up-to-date with changes in technology and changing social conditions in order to effectively solve some educational problems. Likewise, changes in education require education about educational innovations that will be used to solve certain educational problems, such as related problems, greater number of learners, modern curricula development. Produce and develop new media to respond to human learning more with a shorter period of time. The application of innovations in the educational management system also contributes to the use of educational resources. Learning is effective, such as

self-learning, the rapid advancement of the academic world, especially after the Second World War onwards, new technologies and inventions have been invented in the multiplicity of societies directly affects the changes and adjustments in the curriculum of educational institutions and results in a chain of teaching problems, program selection and understanding of new content. of students the severity and complexity of these problems has continued to increase as the amount of new academic content is vast beyond the ability of those involved to choose to memorize and present them in the same way. Therefore, it is necessary to use technological and innovative tools suitable for Situations such as the presentation of academic information by cassette tapes, microforms and laser discs, computerized learning guided by the rapid change of society which is affected by the development of science and technology. As mentioned above, it has a direct impact on the lives, adaptation and development of students. Personal and social guidance to students requires

the use of technology and innovations that are appropriate for the situation to be able to provide a comprehensive range of services. Information society or information society resulting from the development of electronics, computers and telecommunications technology has made all forms of news - sound, still images, animations, graphics and computer information - can be transmitted and transmitted quickly in every corner of the world. The society of today and the future will be a society that is flooded with information and news [7]. Today's large schools tend to increase steadily as the school-age population declines and the popularity of parents wishing to send their children to study in the city makes education management unable to adequately reflect its quality and efficiency, so first things first. What small schools should do is to seek ways to develop their own schools to remain effective. And from the results of the research, it was found that, in an effective way to manage small schools, schools need to build new knowledge bases and bodies of knowledge through the 3 aspects of relational participation processes. Including 1) innovation dimension Communication Technology and Information (ICT) 2) dimensions of natural resources, environment and wisdom, and 3) dimensions of participation processes and networking systems. In addition, policy recommendations on inputs by creating a quality development plan for teachers and administrators of small schools to have knowledge and competence in content, learning management skills Production and use of media in various teaching and learning management, the use of ICT media, measurement and evaluation that are suitable for learners. Process Encouraging schools and communities to contribute to the provision of cutting-edge technologies that facilitate learning such as computers. Set of satellite receiver equipment, teaching materials and innovation for use in learning management and management (Jumplala et al. 2014). One of the factors contributing to success will lead to upgrading the quality of teaching and learning to meet the quality standards of basic education of Small schools are aimed at improving the quality of teaching by adopting innovative combinations of information and communication technology for teaching and learning in small classrooms (Wongwanit, 2013). Educational institutions must study and develop technology management strategies. Information is used for educational administration. Develop readiness in information and communication technology for educational institutions and educational agencies under the jurisdiction for learning, and management in accordance with strategies, indicators, relevant departments and timeframes for implementation. Operate in accordance with the policy that can support the change of the global society [12]

The development of strategies for using educational information innovation for secondary schools under the Office of the Basic Education Commission in the Eastern Region is therefore very important to the education management of secondary schools under the Office of the Basic Education Commission in the Eastern Region. In developing a management information system with basic information that is comprehensive, sufficient, accurate and up-to-date, personnel have the knowledge and access to the efficient use of ICT media that will enhance the quality of education in small schools. according to basic education standards.

II. RESEARCH OBJECTIVES

The objectives of this research article were

1. To develop strategies for using educational information innovations for secondary schools under the Office of the Basic Education Commission in the Eastern Region

III. RESEARCH METHOD

Research on the development of educational information innovation strategies for secondary schools under the Office of the Basic Education Commission in the Eastern Region The research was carried out in two steps as follows: The first step is to study the content of the theoretical concept documents.

1.1 The study of documents and related research the researcher studied documents and research related to the development of strategies for using educational information innovations for secondary schools under the Office of the Basic Education Commission in the Eastern Region. Resources at this stage including Documents, textbooks, research articles and electronic media both domestically and internationally by analyzing and synthesizing, and organized into categories

Step 2 Field Study

2.1 Interview with experts. Researchers interview experts. 9 people in the issue of developing strategies for using innovative information for education for secondary schools under the Office of the Basic Education Commission in the Eastern Region

2.2 Multi case studies, 5 model schools, multi case studies, model schools that have been awarded the Best Practice Award. practice) Education management with distance technology through information technology of 3 schools and 2 schools that use information and communication technology for education in management

2.3 The researcher brings the results of the study, documents and related research. Inquiring about the components of the development of innovative educational information strategies

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for secondary schools Under the Office of the Basic Education Commission in the east from model school interview with experts and multidisciplinary studies of model schools to synthesize in order to create a draft development strategy for using innovative information for education for secondary schools under the Office of the Basic Education Commission in the east

2.4 Researchers develop strategies for using educational information innovations for secondary schools. under the Office of the Basic Education Commission in the east by using expert group meeting techniques

Step 3 Key Informants

3.1 Interviews with expert's key informant Consisting of 9 qualified persons, obtained by selecting a specific (Purposive Sampling) as follows: Academics are those with a degree of not lower than a doctorate degree. Hold an academic position not lower than Associate Professor and have teaching experience about information technology not less than 5 years, 3 people, school administrators, namely the director of secondary schools under the Office of the Basic Education Commission in the east Doctorate degree Administration Studies or related fields or academic standing not lower than special expertise and work in secondary schools under the Office of the Basic Education Commission In the eastern region, not less than 5 years, 3 persons are supervising students under the Office of Secondary Education Service Area Responsible for the development of innovative media and educational technology for not less than 3 years and having at least a master's degree, 1 person. Teachers are teachers responsible for information and communication technology in secondary schools. under the Office of the Basic Education Commission In the eastern region, not less than 3 years, under the Office of the Basic Education Commission, 2 people

3.2 A multi-case study of 5 model schools, who provided important information for each school.

consisted of 5 school administrators, 2 heads of academic administration group and 2 teachers responsible for information technology and communication.

3.3 Development of strategies for using innovative information in education for secondary schools under the Office of the Basic Education Commission in the east by using the Experts Group Meeting technique, key informants consisted of 11 experts obtained by selecting a specific method (Purposive Sampling) consisting of 3 academicians, 3 educational administrators, institution administrators. The study consisted of 2 people, a supervisor of 1 and a teacher of 2 people.

Step 4 Tools and methods used in the study

4.1 Interviews, research tools It is a semi-structured interview format.

4.2 Multiple Studies research tools It is a semi-structured interview format.

4.3 Experts Group Meeting Tools used in research It is a model for assessing the consistency and conformity with what needs to be measured, i.e. IOC (Index of Items Objectives Congruence), strategies for using information and communication technology. for education for developing educational information innovation strategies for secondary schools under the Office of the Basic Education Commission in the east.

Step 5 Gathering Information

5.1 Data collection interview

5.2 Multi-case study of data collection Coordinating with the school director who studies multi-case

5.3 Data Collection Expert Group Meeting by Expert group meeting of 11 experts

Step 6 Data Analysis

6.1 Interview Data analysis the researcher used the data obtained from interviews and documents. Let's analyze the content and categorize it according to various issues and then apply the results to create a research conceptual framework.

6.2 Multiple Studies Data analysis the researcher used the data obtained from a multi-case study of model schools that have won the award for best practices in remote technology education through information technology to analyze the content and categorize them according to various issues. Statistics are frequency values.

6.3 Data Analysis Expert Group Meeting The researcher gathered the data obtained from the Expert Group Meeting and the results of the strategy congruence assessment to summarize, analyze the content and categorize it according to various issues. Using statistics is the frequency value. and the determination of the Index of Items Objectives Congruence (IOC) [11]

Step 7 Summary of research results and presentation of research results.

From the results of the study to develop strategies for the use of educational information and communication technology for the development of strategies for the use of educational information innovations for secondary schools under the Office of the Basic Education Commission in the Eastern Region

IV. DISCUSS THE RESULTS OF THE RESEARCH

Developing strategies for using educational information innovations for secondary schools under the Office of the Basic Education Commission In the eastern region, there are 8 strategies, 32 projects/activities, 80 indicators, namely 1)

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strategies for management within educational institutions, there are 4 projects/activities, 10 indicators, 2) strategies for using information innovation for education, there are 4 projects/activities, 10 Indicator 3) Teaching and learning management strategy, there are 4 projects/activities, 10 indicators, 4) learning process strategies, there are 4 projects/activities, 10 indicators, 5) Resources strategy in learning management, there are 4 projects. /activity 10 indicators 6) information technology cooperation network strategy, there are 4 projects/activities, 10 indicators, and 7) personnel promotion and development strategies, there are 4 projects/activities, 10 indicators; Promotion and educational fun media with 4 projects/activities, 10 indicators, consistent with the concept of [1] which recommends educational institutions to education 4.0 that should focus on children to grow according to their potential. and can generate productivity or ideas that benefit innovation In which Thai education must teach children to have knowledge and understanding, to be able to analyze and work properly. Each child should produce a product that is appropriate to his learning level through the process of searching or researching. Practices that lead to the creation of products to be utilized are the starting points for new innovations. Must strengthen the principles of critical thinking, creativity, including a productive mind that children can learn the process of creating jobs. Because the cause of education 4.0 The important way is to prepare people. Teachers have to push the children to invent new things. Start with self-exploration, learning, and productivity.

2. Development of strategies for utilizing educational information innovation for secondary schools in the use of information and communication technology for education on information technology infrastructure 4 projects/activities 10 indicators are consistent [3] said that the strategy of Infrastructure The main strategies is the ICT Infrastructure Development Strategy for Education. It consists of secondary strategies and activities as follows: device development, development and network development.

3. Strategy development in terms of teaching and learning management, there are 4 projects/activities, 10 indicators consistent with [9]. A study of the development of information technology and communication technology management strategies for school education was studied. Under the Education Service Area Office, It was found that teaching-learning management development strategies The main strategies are strategies to promote and encourage teachers and educational personnel to apply ICT in teaching and learning. which consists of a secondary strategy, which is the development of instructional management, has activities to encourage teachers to analyze individual learners

Encourage teachers to organize teaching activities to develop learners to their full potential. Encourage teachers to regularly assess learners' needs. Encourage the division of students into groups to develop learners to develop their potential clearly. Encourage a variety of activities suitable for each group of students. Encourage teachers to create an environment that is conducive to the learning process. Encourage students to use ICT to learn on their own. Develop teachers' commitment and dedication to improving the quality of students and schools. Encourage teachers to have a system of supervision for teaching and learning for all subject groups. for academic cooperation and assistance Encourage teachers to bring local wisdom to help in teaching and learning management. and encouraging teachers to evaluate the use of ICT

4. Strategy development Regarding the learning process, there were 4 projects/activities, 10 indicators consistent with [3]. The development of information technology and communication technology management strategies for education was studied. for large schools Under the Office of Secondary Education Service Area, Region 4, Pathum Thani Province, it was found that the strategies for developing the learning process were the strategies for developing learners' potential in ICT for education. It consists of secondary strategies and activities as follows: 1. Development of characteristics or attitudes and 2. Development of ICT knowledge and skills, and is also consistent with [4] having studied strategies for effective use of information technology. for schools to expand educational opportunities Under the Office of Primary Education Service Areas in the Northeast found that the learning process development strategy the activities consisted of 1) promoting and encouraging teachers to use information and communication technology for learning to use in teaching and learning appropriately, and 2) developing technology skills for teachers and personnel.

5. Strategy development in terms of resources in learning management, there are 4 projects/activities, 10 indicators consistent with [5] said that learning resources refer to the management of educational materials of educational institutions. By providing a website that is used to manage teaching and learning for students with a source management system. learning all learning subjects Media collection Innovation in teaching and learning in information and communication technology in a systematic way is organized as a learning resource repository Information Technology Media Center and communication, electronic libraries, etc., according to the potential of the educational institution, in accordance with [6] said that learning resources mean educational institutions have a website used in teaching and learning. There is a learning resource management system. media collection systematic teaching innovation have a

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library of learning resources electronic library or information technology media center According to the capacity of educational institutions and [7], learning resources refer to all kinds of resources that learners can use either individually or in combination. informal to facilitate learning resources include news, information, people, materials, tools, techniques and buildings.

6. Strategy Development As for the information technology cooperation network, there are 4 projects/activities, 10 indicators consistent with [8] said network development. or the development of information technology means coordinating with the government, private sector, state enterprises, municipalities, local government organizations Religious leaders and people who realize the importance of education in order to support and assist basic education institutions to develop their work towards the vision, mission, objectives and goals effectively. Providing knowledge services to the community by using information technology and communication as a tool In line with Kitjasajja (2016), it was found that strategies for network development, development of information technology, main strategies are strategies for improving the quality of ICT equipment and network systems. It consists of the following secondary strategies: 1. Developing efficient equipment and network systems and 2. Maintaining

7. Strategy Development On the promotion and development of personnel, there are 4 projects/activities. 10 indicators consistent with [9] have studied the development of information and communication technology management strategies for school education. Under the Education Service Area Office Bangkok found that personnel development strategies There are main strategies, namely, campaign strategies for teachers to and personnel to develop ICT skills for education and 2. to develop ICT knowledge and skills.

8. Strategy Development In terms of promotion and educational fun media, there were 4 projects/activities, 10 indicators consistent with [10]. The development of information systems for student affairs at Don Thao Wittaya School was studied. Nakhon Ratchasima Educational Service Area Office, Region 1 found that the results of the development of student affairs information system Don Thao Wittaya School There are results of the implementation of the educational framework consisting of 4 tasks, namely work according to the Act and regulations related to students, student performance promotion work. Curriculum promotion events held in schools and building relationships between schools and alumni Able to respond to the user's information system development needs as well as being quick to search There is a suitable system for data storage, easy to search,

accurate and up-to-date reporting. create satisfaction for the users of the program

V. CONCLUSION

Development of strategies for using educational information innovations for secondary schools under the Office of the Basic Education Commission in the east Consists of 8 strategies, 32 projects/activities, 80 The indicators were 1) strategies for management within educational institutions, there were 4 projects/activities, 10 indicators; 2) strategies for the use of information innovation for education. 4 projects/activities 10 indicators 3) teaching and learning management strategies have 4 projects/activities 10 indicators 4) learning process strategies There are 4 projects/activities, 10 indicators. 5) Strategies for resources in learning management. There are 4 projects/activities, 10 indicators 6) Strategies for network cooperation in information technology, there are 4 projects/activities, 10 indicators and 7) Strategies for promoting and developing personnel with 4 projects/activities, 10 indicators. 8) Strategies for promoting and supporting educational media: There are 4 projects/activities, 10 indicators. Can be applied in educational information and communication technology administration for secondary schools. under the Office of the Basic Education Commission in the east to be really effective

VI. SUGGESTION

From research results the researcher has the following suggestions:

1. Recommendations from research

1. The results of the development of strategies for the use of educational information innovations for secondary schools under the Office of the Basic Education Commission in the Eastern Region are appropriate and can be applied in the administration of information and communication technology for education. for secondary schools under the Office of the Basic Education Commission in the Eastern Region to be effective

2. Suggestions for the next research

For the next research issue, research should be done on the issue of developing innovative strategies.

1. To study model schools in private communities about the process of developing a model for implementing the strategy of using information and communication technology for education for secondary schools under the Office of the Basic Education Commission in the Eastern Region into practice

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The Culture of Wearing Chador and the Iranian Islamic Revolution Affecting Thai Society in Today's World

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Abstract— The objective of this research is to analyze the wearing of chador among Thai Muslim women in relation to The Iranian Islamic Revolution and to exam the wearing of chador among Thai Muslim women affecting cultural identity. The research employs a mixed method, designed to conduct quantitative research by using a survey research method without participation. The sample group is 25 Shia Muslim women in Pho Thong Sub-District, Tha Sala District, Nakhon Si Thammarat Province, which is divided into 2 groups, including 10 people who had studied in Iran and 15 people who had never studied in Iran. For qualitative research, it consists of in-depth interviews and documentary analysis. The research found that firstly the wearing of chador among Thai Muslim women is related to the Iranian Islamic Revolution since Thai Shia women have faith in the doctrine of the Shia Islam as the model appearing in the Islamic Republic of Iran. They believe that it is correct according to the Islamic principles. Therefore, they adopt these principles and practices such as dress code to practice in Thailand without thinking that it is wrong or impractical. Secondly, the wearing of chador among Thai Muslim women affects their cultural identity. It was found that the wearing of chador among Thai Shia women has established the identity of Shia Muslims in Thai society. Shia women would wear chador for religious validity. Furthermore, the wearing of chador has created the difference between Sunni Muslims and Shia Muslims in Thailand, especially the religious ceremonies. Therefore, the wearing of chador among Thai Muslim women is associated with the Iranian Islamic Revolution because after the Islamic Revolution of Iran, it has led to changes in various countries including of Thailand, which could be observed from the current dress of Muslim women. The wearing of chador has created the identity of Shia Muslims in Thai society.

Keywords— *The wearing of chador, The Iranian Islamic Revolution, Thai society*

I. INTRODUCTION

Garment and dress are highly relevant to human life. Clothing is one of the essentials for human life. Dressing is a human behavior that is a continuation of the invention and use that humans produce in response to their own needs which a study of anthropologists and historians explains. The behavior of the human body beautification is a universal behavior and found in all cultures Anthropologists have divided their considerations into two areas: one, the style and characteristics of body decoration, such as clothing, hairstyles, etc., and two meanings of dress. Anthropological studies have shown that in a complex and stratified society. The decoration of the body is a symbol of social status, honor, and dignity. It is a symbol of class and status, such as jewelry, expensive clothes will reflect the position of the person. The more people in the upper class, the more there are jewelry and clothing that are expensive, detailed and exquisitely beautiful. Thus, the jewelry and clothing of the aristocracy were like works of art and aesthetics, reflecting social rules. The way

people dress in each culture indicates they are members of a group, or in other words, clothes and dress indicate “Cultural Identity” and “Ethnic Identity” that separates who is like us and different from us. It is also a gender distinction on how men and women should dress. How should children and adults dress? Anthropologists believe that embellishing the human body is another type of "language" that expresses various beliefs and also to show others who they are and who we are [1] [2]. Therefore, the study of the dress of people in society is an important issue in addition to understanding the way of life of the people. Humans also make sense of grouping and creating their own identity through dress. Considering the existing studies on dress in Thai society, the authors found that most of them describe the methods of fabric production introducing major production sources clothing styles or styles of dress that are separated by historical periods. This study led to several approaches one interesting approach is the study of social history focusing on patterns and the change in social patterns and contexts in order to show the dynamic way of life and relationships of people in that society [3]. The study of Chador culture and the Iranian Islamic Revolution that affect Thai society today. There is almost no education. This article

attempts to understand and explain the Chador wearing of Thai Muslim women in relation to the Iranian Islamic Revolution and to analyze the impact of wearing Chador of Thai Muslim women on cultural identity. In the area of this article, we will talk about the dress of Muslim women. In the area of Pho Thong Sub-district, Tha Sala District, Nakhon Si Thammarat Province only.

II. RESEARCH OBJECTIVE

The objective of this research is to analyze the wearing of chador among Thai Muslim women in relation to The Iranian Islamic Revolution and to exam the wearing of chador among Thai Muslim women affecting cultural identity.

III. RESEARCH METHOD

This research was mixed methods research between qualitative research by collecting research papers and data from books, textbooks, research reports, research articles, papers and interviews. Quantitative research was also designed by using a survey research method, collecting data by non-participant interview method from 25 Shia Muslim women in Pho Thong Sub-district, Tha Sala District, Nakhon Si Thammarat Province. They were divided into 2 groups: 10 people who have studied in Iran and 15 people who have never studied in Iran for qualitative research. In-depth interviews and document analysis have been compiled.

Research tools, the tools used for data collection are the method of non-participation of the interview with the question-and-answer approach about 1) Knowledge of the Islamic Revolution of Iran, 2) How is the Chador Dressing Associated with Iran? 3) Shadow wearing and identity creation.

IV. CONCEPTUAL FRAMEWORK

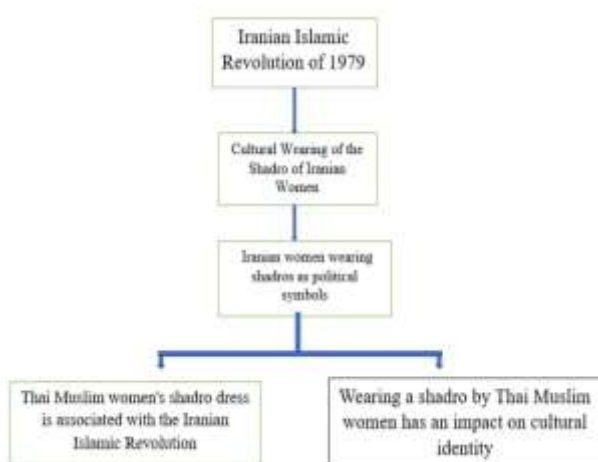


Fig. 1 Conceptual Framework

V. RESEARCH RESULTS

The results showed that 1) Thai Muslim women's dress and Chador are related to the Iranian Islamic Revolution. This is because Thai Shia Muslim women believe in Islamic teachings, Shia sects, as precedents in the Islamic Republic of Iran that is correct according to Islamic principles Therefore, the doctrine and practice such as dressing for practice in Thailand without thinking that it is wrong or impractical. 2) Wearing a Chador by Thai Muslim women affects their cultural identity. Wearing the Chador of Thai Muslim women of the Shia sect found that the effect of wearing Chador has created the identity of Shia Muslims in Thai society. Shia Muslim women wear a Chador for religious validity and another manifestation is that wearing a Chador makes a difference between Sunni Muslims and Shia Muslims in Thailand especially in religious ceremonies Therefore, Thai Muslim women's Chador dress is associated with the Iranian Islamic Revolution. Because after the events of the Iranian Islamic Revolution has resulted in changes in various countries, including Thailand. This can be considered from the dress of modern Muslim women. The dress by wearing this Chador has created the identity of Shia Muslims in Thai society.

VI. DISCUSSIONS

A. Dress of Thai Muslim Women

Islam is a religion that has a comprehensive set of beliefs and practices with the Holy Quran. It is the supreme constitution for life. Islam, besides being a religious belief Islam is a way of life. There are specific behavioral patterns that have been defined as standards. The Prophet Muhammad said that Islam is an inseparable culture in terms of religion and way of life. The Quran is the book that the Prophet Muhammad ate from Allah. The Scriptures cover all aspects of the way of life of mankind, be it faith, politics, economy and society, including the provision of women's dress as well. These provisions are utterances or directives from Allah who wish to communicate directly with humans for mankind to implement those laws which will bring benefits to all human beings. In other words, the Quran is the constitution of Muslim life. It is a law that everyone must obey. No Muslim has denied even a single paragraph of the Quran [4] [5].

In Islam, there are provisions relating to the dress of women who follow Islam must dress completely. A headscarf or hijab must be covered when leaving home or meeting other men with whom we can marry. The word hijab means covering not

only to cover the body but also to calm the mind and to express proper expression.

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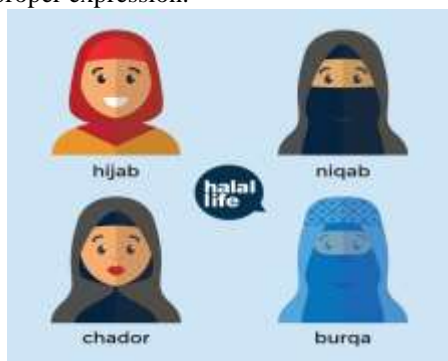


Fig. 2 Hijab pattern (Retrieved, June 1,2021,From : <https://www.halallifemag.com/hijab-101/>)

Style of Hijab)

The hijab is required by religion and cover all parts of the body except or can only be seen on the face and palm that means covering your feet. The length of the cloth must cover the chest. Colors and patterns should be modest and unattractive. The style of hijab will vary depending on the area and culture of each person as we see each other often. It can be divided into 4 types as follows:

1. Hijab is a universal form of covering that can be seen everywhere. There may be colors or patterns based on the eras and fashions that we commonly see and can be adapted to any style of clothing, both modern and traditional. Most Muslim women tend to wear this kind of hijab.

2. Burka is a hijab that covers all parts of the body, including the eyes, but the eyes are made of a thin mesh cloth so that the wearer can see through the mesh over her eyes most are seen in Afghanistan.

3. Niqab is a long hijab that covers the face and can only be seen by the eyes. It is mostly worn in Arab countries and in many countries. In Thailand, quite a few people choose to cover the Niqab.

4. Chador (Chador) is a large black veil in the shape of a semicircle that extends to the ground. Most of them are found in Iran [6] [7] [8].

Therefore, the general dress of Muslim women must include a hijab for Muslim women in Thailand. In the past, there was no strictly religious dress code because there is no clear understanding of Islamic dress code and a sense of attachment to their former society, as well as the comfort of wearing. As a result, Muslim women in the past wore religious clothing for important ceremonies or special meetings. However, nowadays the dress of Thai Muslim women has changed. Thai Muslim women give the importance of cultural and religious dress the dress of Muslim women is characterized by the use of cloth to cover the body as closely as possible. Collectively referred to as the "hijab", it is considered to be a safe garment for women from tying, mocking and harassment.

For countries in the Middle East region most women wear a dress that covers their entire body as it has long been a feature of the Middle Eastern ethnic tribal culture. The dress of the people will be consistent with the harsh environment, which is very hot and cold including the dust of sand and in accordance with the way of life of society in the past that is characterized as a society that fights and competes including the war between the tribes. Therefore, it was necessary to cover up their bodies completely. This kind of body covering thus causing the tribal attire until now, it has evolved into a dress that covers all parts of the body, such as the abaya dress in Saudi Arabia kalibiyah dress. It is called a gallibiyah in Egypt and in the Islamic Republic of Iran called Chador. Chador is a type of robe used to cover the bodies of Muslim women in the Islamic Republic of Iran and Islamic countries in the Middle East. Chador is a long veil in the shape of a semicircle. Most are black or white. Chador is a large piece of cloth that can cover the wearer's head to feet. Most of the time, Chador will not sew his arms. Instead, it is used to support Chador by hand or a brooch to keep Chador from falling off.



Fig. 3 An Iranian woman wearing a Shador
(Picture by Author in Iran Embassy in Bangkok, March 20, 2021)

Thus, it can be said that the hijab is important and the main body of a Muslim woman. Muslim women's hijab is compulsory according to religion which every Muslim woman must follow this religion in order to show her faith in Allah and is considered a true Muslim.

Thailand is a country with freedom of religion. There were 94.6 percent of Buddhists, 4.6 percent of Muslims, 0.7 percent of Christian [9]. It is cultural diversity in the long-established Thai society. Thai society is a society that can coexist without conflicts in religion since the past. People in society interact with each other in different ways according to the practice of that religion.

In addition, the Constitution of the Kingdom of Thailand, B.E.2550. People in religion as stipulated in Article 37, "A person has complete freedom to hold a religion, a sect of religion or religious ideology and shall have the liberty to obey religious ordinances or perform rituals according to their beliefs. When it's not an adversary of citizens and not contrary to public order or good morals of the people in exercising the liberties under paragraph one, a person shall be protected from any act which impairs his or her rights or loss of benefits. It should have because of religious sect of religion religious ideology or follow the religion Religious or religious rituals different from other people."

Over the past three decades, there has been a change in the culture and dress code of Muslim women. Some of them clearly happened. It is to say that Muslim women have turned

to dress according to Islamic principles by dressing in Characteristics that cover the parts of the body completely from head to toe reveal only the face and palm only also known as dressing in a "hijab". According to religious regulations, it is the current change partly influenced by efforts to "Restoring Islam" as a consequence of the Islamic Revolution of Iran in the 1980s, with the main idea of inviting Muslims to be better Muslims, the trend spread throughout the Muslim world, including Thailand.

The revival of Islam in Thai society, like many other countries, is an initiative to revert to Islamic principles. which is caused by educational thought leaders including the scope of the revival movement will be in the circle of teachers, students or people with higher education and wealthy people [10] by various phenomena that is a characteristic of the Islamic revival of the Muslim society especially in Muslim countries can be clearly seen at both the individual level Group level and government level. It was during this time that the movement was focused on the Islamic Resurgence that was taking place around the world islamic revival. This was a result of two factors, namely, factor 1, the reversal of religious traditions (Islamic Tradition) in order to accept the change in Western currents. (Westernization) and another factor is the response positive to the challenge from the west by trying to understand the nature of such processes and offer alternatives to the world with Islamic culture and civilization.

At the same time, in Thailand, the Muslim minority has an important effect on the transformation of the hijab into a clear symbol. Muslims in Thai society are beginning to realize the importance of strictly following religious principles which the hijab is like a signal that has been revealed Muslim society in Thailand especially in the three southern border provinces is going to change and began to intensify, that is, from the original hijab according to religious principles. Today, Muslims use the Chador to use in their daily lives starting from a group of students outside who received a scholarship from countries in the Middle East adopt this idea into practice in society.

B. Thai Muslim Women's Chador Wearing Related to the Iranians Islamic Revolution

The Iranian Islamic Revolution of 1979 was one of the events in world history that demonstrated the importance of cultural forces in social change, but the distinguishing feature of the Islamic Revolution event is different from other revolutions. Traditional dress was used as a tool in the Islamic revolution. This caused a fight between political groups with religious ideology and those with secular political trends. The secularization of the Iranian Islamic Revolution of 1979 was a conflict between nationalist groups and Western-minded Muhammad Reza Shah (1941-1979). The cause of the

conflict was caused by the dissatisfaction of nationalists who saw that the Iranian government at that time had no real power to protect the country's interests. In particular, the oil interests that the Iranian government had to share in an unfair manner with Western powers [11] [12]. Tensions between the government of Muhammad Reza Pahlavi Shah and the people of Iran have increased, but on the other hand, the Shah of Iran has good relations with the West especially the United States. Iran receives both military and economic aid from the United States. Public dissatisfaction led to riots in 1979. People marched against the king and this led to violence. A confrontation ensued between protesters and government soldiers, but in the end, Muhammad Reza Pahlavi Shah was unable to deal with the riots. Therefore, it had to flee from Iran. It was a victory for the people of Iran that made the Islamic Revolution under the leadership of Ayatollah Ruhollah Khomeini a success. Then, an Islamic Republic was established in Iran.

Thailand in the 1980s received a wake-up call for the Islamic revival that formed the Middle East which is the birthplace of Islam. As a result, there was a trend of changing the dress of Muslims. From the incident of hijab movement in Yala in 1988, the incident demanding the right to wear hijab and dress is related to the religion of Yala Teachers College students. It shows costume as the case with a small number of Muslim students wearing a headscarf or hijab that has seen as a conflict of ethnic minorities and having to negotiate traditional rules within society. It is a historical bargain for Malay Muslims in the southern border provinces. It is one of the most important political movements for Malay Muslims in Thailand changing the style of wearing that wearing hijab. It is therefore an important indicator of the significant Islamic revival influence from the Islamic Revolution of Iran.

In the Islamic Republic of Iran, the Iranian government has encouraged Iranian women to wear the hijab, the national dress known as Chador, a long, sleeveless black half-circle, veil circle. Most are black or white. Chador is a large piece of cloth that can cover the wearer's head to feet. Most of the time, Chador will not sew his arms. Instead, it is used to support Chador by hand or a brooch to keep Chador from falling off and a new style with sleeves similar to the general long gown which will be worn over another layer of attire, but it's not forcing anyone to wear it or not.

This is because the Iranian government has passed a law requiring all Iranian women to wear the hijab in public places. The popularity of wearing Chadors in Iran makes it imperative that people follow suit, although it is not compulsory, but for convenience and safety, Iranian women still wear Chadors. More interested in the fashion coats to wear especially affluent women and people of social status in

Tehran. Iranian women wear long robes in more variety of colors. In addition, there are different designs or styles that are beautiful, however, they will use colorful bandages or turbans. (8) to match the outfit you wear, but there were still some who wore a layer of Chador on the outside.



Fig. 4 Iranian women wearing a Chador (Picture in Iran by Author, June 21, 2018)

Iranian women's dress fashion has expanded into Thai Muslim society. As a result of the Thai students went to study in the Islamic Republic of Iran. While in Iran, I dressed in a Chador and has the view that the dress of Muslim women is correct and appropriate according to religion. There should be a style of dress that the Iranian government dictates and therefore adheres and practices it. When he returned to Thai society, he would discriminate and propagate religious concepts and dress to Thai Muslim women. As a result, the style of wearing Chador has expanded into Thai society especially Thai Muslim society of the Shia sect especially the Ruhullah Mosque community, Pho Thong Subdistrict, Tha Sala District, Nakhon Si Thammarat Province. During religious days women will wear Chador to attend the ceremony or some people wear Chador regularly with the view that this practice is correct practice according to Islamic principles.



Fig. 5 Wearing a shadro of a Thai Muslim woman at Ruhullah Mosque Community, Pho Thong Subdistrict, Tha Sala District, Nakhon Si Thammarat Province (Picture by Author, June 18,2020)

C. Wearing a Chador by Thai Muslim Women has an Impact on Cultural Identity

According to historical evidence, Islamic groups first appeared in southern Thailand. Since the 14th century, the ruler districts Islam During the Ayutthaya period (1350–1767), Muslims who came from Malay settled a large number of houses in Ayutthaya[13] [14] [15] [16] [17] from evidence of Thai history. It was found that religious conflicts did not appear and people who practice Buddhism and Islam. There is mutual cooperation between Thai Buddhists and Thai Muslims in the administration of the country, come together in every era Muslim society in Thailand has been at peace for a long time. However, after the Iranian Islamic Revolution Conflicts in the Muslim world have arisen and have extended to Thai society that is to say, there was an idea of partisanship in Thai Muslim society, namely the division of Sunni and Shia groups. The Shia Muslims are a group that adheres to the guidelines of Imam Khomeini (1979-1989). The differences in beliefs between the two groups led to conflict among Muslims and current Shia Muslims are fewer than Sunni Muslims. Therefore, it is necessary to create their own identity dressing by wearing a Chador is one of the identities of Shia Muslims who follow the beliefs of the Islamic Republic of Iran. The result of this identity creation has resulted in cultural impacts in Thai society that is to say, from the past, religious dress was accepted by Thai society and there was no conflict. However, when religious principles are introduced to describe the relationship with dress wearing

a Chador by a Thai Muslim woman, it has created the identity of Shia Muslims in Thai society. Shia Muslim women wear a Chador for religious validity and another manifestation is that wearing a Chador makes a difference between Sunni Muslims and Shia Muslims in Thailand especially in religious ceremonies. It is considered a change and an impact on cultural identity that appears in Thai society.

VII. RESEARCH KNOWLEDGE

From the results of the data analysis that answered the above research objectives, this results showed that it was developed a linkage diagram between Thai Muslim women's dress code, and Chador wear related to the Iranian Islamic Revolution. It was also showed how Thai Muslim women's Chador wear affects cultural identity which consisted of 1) applied through educated leaders from Iran, and 2) applied through community dress and religious dress.



Fig. 6 Research knowledge

VIII. CONCLUSION

Thai Muslim women's Chador dress is associated with the Iranian Islamic Revolution. This is because Thai Shia Muslim women have faith in Islamic teachings, Shia sects, as precedents in the Islamic Republic. Therefore, the doctrine and practice such as dressing for practice in Thailand without thinking that it is wrong or impractical. The facts of the constitution have already been stipulated in this regard and the wearing of Chadors by Thai Muslim women has an impact on cultural identity. It was found that the effect of wearing Chador has created the identity of Shia Muslims in Thai society. Shia Muslim women wear a Chador for religious validity and another manifestation is that wearing a Chador makes a difference between Sunni Muslims and Shia Muslims in Thailand especially in religious ceremonies. Therefore, Thai Muslim women's Chador dress is associated with the

Iranian Islamic Revolution. This can be considered from the dress of modern Muslim women. The dress by wearing this Chador has created the identity of Shia Muslims in Thai society.

Therefore, to prevent and prevent divisions in society, the study of wearing Chador is therefore an important aspect that cannot be overlooked because nowadays it is observed that the women who wear the Chador are Shia Muslims and get ideas from Iran. Therefore, Shia Muslims, who are a minority in Thai Muslim society, have created their own identity due to religious conflicts. Originally, the dress was just wearing a hijab. According to Islamic principles, it came to wearing a Chador to show identity in society. Clothes and dress, thus indicating the “cultural identity” and wearing of the Chadors of Shia Muslim women in Thailand has created a cultural identity associated with the Iranian Islamic Revolution, which is something, that is very important and changing in the world.

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Course Management Based on Outcome-Based Education (OBE) of Learning by Working in Real Conditions

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Abstract— Course management based on Outcome-Based Education (OBE) of learning by working in real conditions was used in teaching and learning in the subject of the seminar in entrepreneurship management and innovation in semester 2/2019 of the faculty of business administration, 35 students. Outcome-Based Education's conceptual and theoretical teaching management model would be incorporated into the teaching and learning process. The results of course management based on Outcome-Based Education (OBE) of learning by working in real conditions showed that the outcome for the learners consisted of five areas: 1) participation/ engagement of the learners 2) learning behavior 3) motivation 4) attitude of the learner and 5) learning achievement. Overall, all aspects were at a very good level. The results for the instructor consisted of 2 areas: 1) attitude of new learning management and 2) teaching behavior. In addition, it was found that teachers became more aware of learning, cognitive skills, and had a clearer picture of the new learning management in line with the 21st century and the preparation of teaching and learning planning to be more systematic. It also found that teachers were satisfied and interested in developing new learning management practices that were consistent with Outcome-Based Education's concepts and theories.

Keywords— Course Management, Outcome-Based Education, working in real conditions

I. INTRODUCTION

Thailand 4.0 is the implementation of the goals of the strategy "Thailand 4.0" and is the starting point of the 20-year national strategy to drive concrete and sustainable prosperity and economy through innovation. Thailand has the opportunity to become a high-income country in terms of less is more, reducing foreign dependence, reducing inequality while creating economic and social balance. This requires the transition from commodities to innovative products and expand it to become a competitive advantage (Suwit Maesincee, 2016). Course on Outcome-Based Education (OBE) is the philosophy of education. It states that education should be aimed at producing specific early students' learning outcomes, knowledge and competencies. The curriculum and teaching methods are designed to be able to produce students with such knowledge and abilities. Learning outcomes are expectations in the sense that students will be able to meet the learning outcomes of a learning activity and Outcome-Based Education. The outcome-specific process controls the teaching and learning activities in Outcome-Based Education for all courses. The teaching and learning are tailored to the

specific characteristics of the students once they have completed their studies. Learning outcomes according to National The 2017 Qualifications Framework: NQF) refers to the learning qualification criteria and the learning outcomes arising from the learning process as the learning standards of the curriculum established at each level and educational type and / or the experience arising from practice and / or from work consisting of 3 dimensions: 1) Knowledge refers to knowledge of facts, principles, theories and practices relevant to the field of study / work, with an emphasis on theoretical knowledge and / or facts. 2) Skill refers to the ability to perform tasks. A person should do so when assigned. Managed and problem-solving methods can be chosen by employing cognitive skills in areas related to logical, intuitive, and creative thinking or practical skills / practice with fluency and proficiency in implementing the framework of each level of qualifications. 3) application and responsibility refer to a person's competence arising from the learning process and the use of knowledge, social skills in work / education for the professional development of the person. It consists of the ability to communicate, leadership, responsibility, and autonomy to act on their own such as the ability to make decisions and take responsibility for oneself

and others. The standard of learning outcomes is a specific requirement, an outcome intended for the learner to develop the five areas of learning gained during their studies and participation in various activities organized by higher education institutions, both internal and external courses. It is also a credible demonstration of the knowledge, understanding and competence gained from those learning at the end of the course.

Therefore, it is a response to the policy of reforming Thai higher education for the development of manpower and capacity building according to Thailand 4.0 strategy and is the beginning of the 20-year national strategy. Educational management is to produce a competent workforce to meet the needs of graduate users in their work. The researchers are therefore interested in conducting research on "Course Management Based on Outcome-Based Education of Learning by Working in Real Conditions" to support the expansion of real-world learning course, responding to the Thai higher education reform policy on the development of manpower and building competitiveness to support the New S-Curve. It also raises the standard of learning at the bachelor level. The management of the teaching and learning process focuses on creating a practical learning experience in a real-world environment to improve course learning management while modernizing the teaching and learning process and in line with labor market demand. This is to continue to produce graduates who meet market demand with knowledge, skills and professional experience.

II. RESEARCH OBJECTIVES

1. To study the effects of learners and teachers in results-oriented course of hands-on learning.
2. To study assessing students' opinions on outcomes-oriented course management by working in real conditions.

Research hypothesis

Hypothesis 1: Participation / engagement with learner influenced students to course management based on Outcome-Based Education of learning by working in real conditions

Hypothesis 2: Outcomes-Based Education in terms of learning methods and learning atmosphere affected students' satisfaction with course management based on Outcome-Based Education of learning by working in real conditions.

Expected benefits

1. Theoretical benefits: Universities and researchers can apply the concepts and theories involved in this research to explain the outcomes for learners and teachers on course management based on Outcome-Based Education

2. Practical benefits: Universities can use the findings of this research to guide further improvement and development of university services.

III. LITERATURE REVIEW

In the past, education was considered an uplifting of life, a promotion of social status. The post-graduate degree was invaluable as it meant a great opportunity to jump straight into work. Currently, as there was an increasing number of graduates and graduating at the university level was no longer a guarantee of employment. Moreover, traditional learning frameworks were achievement-oriented, which made it difficult for many people to fail to find their own aptitudes. As technology evolved, the value of education and learning was changing. Since the 1980s, the learning direction had changed dramatically as a result of the intensifying influence of globalization. With the revolution in technology and communication, the world had moved from "industrial age" to "post-industrial" where the social economy was based on "knowledge base". Information, knowledge, and innovation were key drivers of the economy, which meant that the skill requirements of human resources were different. A study of the content of 21st century education and learning found signs of possible changes in the university organization, which was the main institution of higher education. It was divided into 3 aspects: substance, methods and tools and organization. As the subject matter changes, methods and tools must be adjusted accordingly, which are divided into 6 types as follows. 1) Digital learning: The digital learning area was another area of life for ordinary people and become an important opportunity and choice of learning accessible to everyone. People could learn anywhere and anytime. It was also compliant with mobile culture and the internet of things, which were driven by ICT technology, the virtual learning area played a role in replacing the traditional physical learning area. Moreover, massive open online course (MOOC) or other online lessons were emerging. The more COVID-19 emerges, the possibilities for digital learning had increased. 2) Method of self-learning: Each person had different learning styles. A variety of learning spaces provided students with the opportunity to have a more complete self-learning ecosystem. On the other hand, the barriers to self-learning depended on the learner's basic ability, but the support system from the network or the learning community remained important. 3) Year-round school: The open education system and the no time frame learning model diluted the conceptual framework of the semester and replaced it with a full-year academic calendar. As a result, educational institutions needed to adjust their relevant activity plans ranging from physical resource

planning, learning measurement system, budgeting, etc. to accommodate this change. 4) Future learning: Developing a physical learning space that responds to future learning directions, whether in terms of physical space or online space, It was important to develop a new form of physical learning space that was consistent with future learning directions such as modifying and building flexibility in classroom, classroom with face-to-face interaction between teachers and learners, different types of classrooms suitable for bringing your own device (BYOD) to co-working space and virtual reality (VR) classrooms for immersive learning, etc. 5) Connection between the university and the community: Learning must be done through hands-on. Innovative research and development continued to be the mission of leading universities, so it was important to establish a connection between the university and the outside community. This connection spanned research funding, staff and physical resources such as laboratories, instruments, equipment, etc. to create an ecosystem that was conducive to innovative research and development, which could be further extended to practical use and economic value creation. 6) Resource management based on digital infrastructure and database management: It improved efficiency in planning, monitoring, auditing and evaluation. It also encouraged full utilization of existing resources on the principle of sharing and breaking barriers between agencies and organizations. Digital infrastructures and databases enabled more efficient resource management and surveillance systems development, planning, auditing and evaluation. The original resource was stimulated for greater utilization on the basis of sharing and breaking barriers between agencies and organizations (Urbanis, 2021).

The conceptual framework of the research emerged from 21st century skills. Bellance & Brendt (2010) offered a conceptual model of 21st century skills with a wide range of elements and skills. The researchers were interested in the concept of Outcome-Based Education, that is the learner-centered approach and the teacher organizes the "learning" process. Classroom lectures were only "activities" or a way to lead learners to "results". Learning would change from Lecture-based Learning to Activity based Learning. There were a number of methods and techniques for this change, but the most important ones included the "Problem-based Learning", "Project-based Learning" and "Service Learning" methods. All of these were Activity-based Learning or Active learning that was an Outcome-Based Education learning model (Rungroje Songsraboon, 2019) (shown in Figure 2).

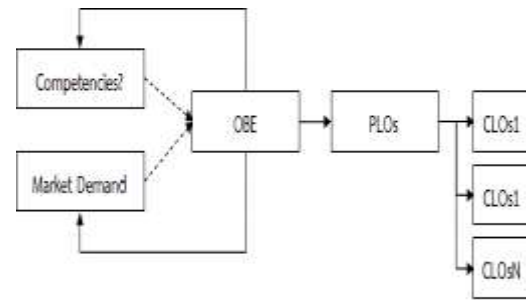


Figure 2 Outcome-Based Education (OBE)
(Rungroje Songsraboon, 2019)

IV. METHODOLOGY

1. The population was 35 students who studied the subject of seminar in in entrepreneurship management and innovation of the Faculty of Business Administration, a university.
2. The sample group was 32 students who studied the subject of seminar in entrepreneurship management and innovation of the Faculty of Business Administration, a university. According to Krejcie & Morgan, confidence level is 95% and error 5% (Krejcie & Morgan, 1970).
3. The tools used in this research were questionnaires. The researcher created this questionnaire to collect data on course management that focuses on real-world learning outcomes and is divided into two parts:
Part 1 was a questionnaire on the outcome of curriculum management based on real working learning outcomes such as participation / engagement, active learner (behavior), motivation, and attitude. The questionnaire used a Likert 5-level scale and could be divided into 5 levels of importance: highest, high, medium, low and lowest.
Part 2 was a questionnaire on the level of satisfaction with course management based on learning outcomes by working in real conditions such as learning methods and learning atmosphere. The questionnaire used a Likert 5-level scale and could be divided into 5 levels of importance: highest, high, medium, low and lowest.
4. The researcher collected data using convenience sampling from questionnaires of 32 students in the classroom. Data were collected from February 2019 to April 2019.
5. Data analysis was done by using a statistical package to analyze the curriculum that focuses on learning outcomes by working in real conditions such as the frequency distribution, mean, percentage, standard deviation, and the statistics used to find the quality of the questionnaire. The result of cronbach's coefficient alpha was 0.914.
6. Research ethics data were collected using questionnaires from 32 students who studied the subject of seminar in in entrepreneurship management and innovation of the Faculty of Business Administration, a university. The investigator

informed the key informant of the research objective prior to collecting the data. Data collection was then carried out in a relaxed atmosphere so that the key informant could provide the information independently. However, this research may have an impact on the key informant, so the key informant's name and surname were not revealed. The researcher adhered to the principles of research ethics and the confidentiality of the key informant.

V. RESEARCH RESULTS

The objective 1 was to study the outcomes for learners and teachers in course management based on Outcome-Based Education (OBE) of learning by working in real conditions.

1. Learners

The study of the results that occurred to the learners in course management based on Outcome-Based Education of learning by working in real conditions found that the outcome for the learner could be presented in 5 areas: 1) participation / engagement 2) learning behavior 3) motivation 4) attitude, as shown in Tables 1 and 5) learning achievement. Overall, all aspects were at a highest level, as shown in Table 2.

Table 1 Four outcomes of students in a course based on Outcome-Based Education (OBE) of learning by working in real condition in four areas

Outcomes of students	Mea n	S.D	Results
1. Participation / Engagement with learner	3.65	0.3	Very good
2. Learning Behavior	3.45	0.4	Very good
3. Motivation	3.50	0.4	Very good
4. Attitude of learner	3.40	0.6	Very good
Total	3.50	0.4	Very good

The results of hypothesis 2 found that the course management based on Outcome-Based Education of learning by working in real conditions in terms of learning method and learning atmosphere had an effect on students' satisfaction with the course management based on Outcome-Based Education of learning by working in real conditions.

Table 2 Learning achievement of 32 students in a curriculum course based on Outcome-Based Education (OBE) of learning by working in real conditions in semester 2/2019

X-Score	F	F	% Title	T-Score	Grade	Summary
91	1	42	95.81	73	A	
90	1	41	95.45	68	A	
89						
88	1	41	96.45	68	A	
87	1	40	94.05	68	A	
86	1	39	88.29	67	A	
85						
84						
83						
82						
81	1	37	86.90	61	A	
80	17	36	65.48	54	A	23
79	1	18	44.05	49	B+	
78	1	18	43.67	48	B+	
77	1	17	39.71	48	B+	
76	4	13	23.81	43	B+	8

The average score was 77.43 GPA = 3.62, a total of 32 people.

2. Teachers

The study on the outcomes of teachers in course management based on Outcome-Based Education of learning by working in real conditions found that, the researcher looked at two aspects in detail: attitude and behavior, which could be summarized as follows.

1. Attitude: Teachers learnt through innovation in the sense that content-based teaching may not be the best approach, especially in the social sciences, where knowledge would be applied in the future. Through innovation, it became clear that the teaching and learning that emphasized on-the-job learning helped students better understand the content. The analysis, synthesis, problem-solving and knowledge could be applied or readily available to the extent that it led to further academic processes and practical experiments.

2. Behavior: Teachers gained a greater understanding and visualization of course management based on Outcome-Based Education of learning by working in real conditions that is more consistent with the 21st century. This resulted in a more systematic learning and planning. It also found that teachers were satisfied and interested in further developing and managing real-world teaching and learning that were consistent with the 21st century for other courses.

The objective 2 was to study how to assess students' opinions on course management based on Outcome-Based Education.

The results of hypothesis 2 found that the course management based on Outcome-Based Education of learning by working in real conditions in the learning method and learning atmosphere had a high effect on learner satisfaction.

Table 3 Assessment of students' opinions on course management based on Outcome-Based Education of learning by working in real conditions

Item	Mean	S.D	Result
A) Learning method			
1. It is a slow step-by-step method of learning.	3.55	0.48	Very satisfied
2. It is a method that helps to plan the work.	3.62	0.42	Very satisfied
3. It is a method that allows for the systematic storage and presentation of information.	3.48	0.45	Very satisfied
4. It is a method that allows for the discovery of knowledge in many ways.	3.88	0.55	Very satisfied
5. It is a method that helps to understand the lessons better.	3.79	0.43	Very satisfied
6. It is an approach that is consistent with the course.	3.89	0.52	Very satisfied
B) Learning atmosphere			
7. It leads to a greater development in analytical thinking.	3.48	0.44	Very satisfied
8. It makes it more responsible.	3.88	0.55	Very satisfied
9. It gives an opportunity to exchange ideas with a group of friends.	3.84	0.58	Very satisfied
10. It creates a fun and exciting learning environment.	3.58	0.41	Very satisfied
11. It generates independent learning according to one's ability.	3.99	0.52	Very satisfied
12. It creates learning from working with others.	3.63	0.48	Very satisfied
13. It builds up the motivation for learning.	3.74	0.47	Very satisfied
Total	3.67	0.51	Very satisfied

VI. SUGGESTION

1. Learners

1. The course management based on Outcome-Based Education of learning by working in real conditions should be applied in the entrepreneurial process in order for students to work together. This knowledge could be applied to benefit learning and to have better self-seeking skills.
2. There should be a course management based on Outcome-Based Education of learning by working in real conditions so that students are interested and motivated to learn.
3. Students should be clarified and understood about course management based on Outcome-Based Education of learning by working in real conditions and assessment guidelines.

2. Teachers

1. All teachers are required to understand and deliver Outcome-Based Education by working in a clear environment and considering activities appropriate to the student's time and workload.
2. Teachers should clarify the model of teaching and learning that based on learning outcomes by working in real conditions to students for acknowledgment and understanding. If modifications are made, notice should be made every time to reduce confusion.
3. For the teaching and learning in the above, if there are more than one step, the teachers should understand and plan the teaching and learning in the same direction as the university.

3. University

1. The university should have a clear policy and management, including human resources, which is a supportive. In the teaching planning and preparation process, teachers have to spend more time than normal teaching and learning materials, including modern teaching materials. In addition, staff and skilled learning materials developers are required to assist.
2. Universities should provide ongoing training to educate teachers and related persons and there should be criteria for

teachers for learning management that based on Outcome-Based Education of learning by working in real conditions. They are required to undergo training in outcomes-based learning management in three key areas: 1) Concepts and theories in training and learning management that based on Outcome-Based Education of learning by working in real conditions. 2) Patterns and methods of learning and learning management that based on Outcome-Based Education of learning by working in real conditions. 3) assessments such as authentic assessment.

3. Ensure that teachers who will apply Outcome-Based Education of learning by working in real conditions, have the correct knowledge and understanding.
4. The teaching workload should be allocated to suit the nature of learning management that focuses on learning outcomes by working in real conditions.

VII. SUGGESTIONS FOR FURTHER STUDY

1. There should be studies and planning to develop course management based on Outcome-Based Education of learning by working in real conditions through joint discussions in the field, setting goals and planning to achieve additional goals.
2. It should analyze the needs of entrepreneurs and set goals for the development of course management that based on learning outcomes by working in real conditions in accordance with the needs of entrepreneurs continuously
3. Preparation should be made to develop the ability of graduates to prepare for their entry into the labor market by providing guidance, learning, adaptation, laboratory practice and preparation in terms of entrepreneurial skills. In addition, other courses are tailored to meet the outcome-based curriculum, with the development of various language skills and the creation of new innovations.

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University Image Affecting Establishments' Decision Making for Selection of Cooperative Education Students

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Abstract— This research was funded by the Faculty of Liberal Arts, Rajamangala University of Technology Thanyaburi (RMUTT). The objectives of this survey research were 1) to study student image affecting establishment's decision making for selection of cooperative education students, and 2) to study factors affecting establishment's decision making for selection of cooperative education students. The university image was based on the Faculty of Liberal Arts, and the data were collected from 84 establishments participating in cooperative education of the Faculty of Liberal Arts by using a questionnaire ($\alpha = 0.95$) and were analyzed by frequency, percentage, mean, standard deviation, and multiple regression. The research results revealed that the level of student image affecting the establishment's decision making for selection of cooperative education students was at a highest level ($\bar{x} = 4.36$, S.D. = 0.64). The factors affecting the establishment's decision making for selection of cooperative education students indicated that the factors of reputation ($\bar{x} = 4.20$, S.D. = 0.57) and public relations ($\bar{x} = 3.97$, S.D. = 0.83) were at a high level; moreover, the factors of curriculum ($\bar{x} = 4.30$, S.D. = 0.58), activities ($\bar{x} = 4.24$, S.D. = 0.63), and location and environment ($\bar{x} = 4.22$, S.D. = 0.69) were at a highest level. The level of establishment's decision making for selection of cooperative education students was high ($\bar{x} = 3.57$, S.D. = 0.61). The results from multiple regression analysis for predictive power showed that the factors of university image affecting the establishment's decision making for selection of cooperative education students were activities, and location and environment at .05 statistically significant level. The predictive model was: Y (Decision) = 0.104 + 0.305 (Activities) + 0.474 (Location).

Index Terms— University Image, Cooperative Education, Decision-Making, Higher Education

I. INTRODUCTION

Cooperative Education is an educational system with real-life work experience with the cooperation of the educational institutes and establishments in order to let cooperative education students make use of their education in the workplaces. According to the work-based learning concept, cooperative education students are required to do a cooperative education project to improve work, increase efficiency, or solve a problem at work. During the 4 months of cooperative education, the cooperative education students will gain work experience and then improve themselves to meet the establishment's needs. [1] To do these, the cooperative education students will work at the establishments as temporary employees. They will broaden their work experience that cannot be taught in the classroom. Not only do they have work experience, but also they can improve their skills of critical thinking, decision making, evaluation, etc. as well as they can find themselves and the direction of their future career. At the end of the semester, they have to present their reports based on their real work

experience reflecting the integration between theory and practice. On account of work-based learning, they are qualified and meet the needs of the labor market. Moreover, cooperative education promotes the close collaboration between the universities and establishments. Faculty of Liberal Arts, RMUTT as a part of educational institutes produces work-ready graduates by letting RMUTT cooperative students work as full-time employees. Multidisciplinary approach is integrated with teaching and learning to pursue academic excellence with research and curriculum development. In addition, the Faculty instructors are required for self-improvement supported by the Faculty of Liberal Arts, especially, opportunities to go abroad. Technology and modern information systems are applied for administration and management at the faculty level to cope with the changing world in order to create new knowledge and produce capable graduates of tourism, hospitality, and English for communication. Cooperative education is a part of the Faculty of Liberal Arts to prepare students in terms of career development, working experience, and self-development; to collaborate with public and private sectors for student potential development and curriculum development; and to build a good relationship with establishments.

So, the university image plays an important part leading to acceptance of establishments that can increase the graduates' chance of employment. Students should improve their image to meet the establishments' needs because a good image is very important for every organization to increase competitiveness by attracting customers as well as investors and business partners. For example, some companies are concerned with the environment, innovations, or education that make the companies recognized. A good image also leads to credibility and opportunities of getting good cooperation from many sectors [2]. Researchers as a part of the institute, an instructor, an advisor, and a cooperative education advisor realized the importance of the university image in various aspects, such as student image, reputation, and so on that affected the establishment's decision making for selection of cooperative education students to work in their workplace. The results would be used as guidelines for future development based on the needs of the establishments, and used for improving student quality toward excellence of the university in Thailand.

II. RESEARCH OBJECTIVES

The objectives of this survey research were 1) to study student image affecting establishment's decision making for selection of cooperative education students, and 2) to study factors affecting establishment's decision making for selection of cooperative education students of Rajamangala University of Technology Thanyaburi (RMUTT), Thailand.

III. RESEACH METHODS

A. Research Design

The university image was based on the Faculty of Liberal Arts, and the data were collected from 84 establishments participating in cooperative education of the Faculty of Liberal Arts during the 2nd semester in academic year 2020. The research instrument of this survey research was a questionnaire approved by 3 experts and the content validity of the questionnaire assessed by using Index of Item-Objective Congruence (IOC) was 0.67 - 1.00. The questionnaire was improved and then tried out to find the reliability by using Cronbach's Alpha Coefficient ($\alpha = 0.95$). The collected data were analyzed by frequency, percentage, mean, standard deviation, Pearson's Product Moment Correlation Coefficient and Multiple Regression with Enter method.

B. Research Process

This research was divided into 5 steps as shown in Fig. 1. The research process consisted of 1) identifying the research topic by defining the research problems or issues, setting the research questions, and reviewing the related literature about university image; 2) creating the research design by designing and trying out a questionnaire; 3) collecting the data by

distributing the questionnaire; 4) analyzing the data and summarizing the results; and 5) presenting the results with discussions and conclusions.



Fig. 1 Research Process

IV. RESULTS

The research findings were divided into 5 sections:

1) the demographic information; 2) the university image; 3) factors affecting establishment's decision making; 4) the correlation between the student image and establishment's decision making for selection of cooperative education students; and 5) the data analysis from Multiple Regression with Enter method between the student image and factors affecting establishment's decision making for selection of cooperative education students.

1. The demographic information: there were 60 females (71.43%) and 24 males (28.57%). Most respondents aged between 25-34 years old (50.00%), and most respondents were from the private sector ($n=44$, 52.38%). Most respondents had a bachelor degree ($n=64$, 76.19%), and the information exposure about the Faculty of Liberal Arts of most respondents were from the RMUTT website ($n=63$, 75.00%).

2. The student image of the Faculty of Liberal Arts: overall opinions of the establishments toward the cooperative education students were at the highest level ($\bar{x} = 4.36$, S.D. = 0.64). When considering each aspect of the student image, the opinions of the establishments were at the highest level in all aspects. The results could be presented in order as follows: the students always volunteered ($\bar{x} = 4.50$); the students strictly adhered to their professional ethics ($\bar{x} = 4.48$); the students had a pleasant personality with trustworthiness, reliability, honesty, and good discipline ($\bar{x} = 4.45$) following by the quality of graduates ($\bar{x} = 4.42$); willingness and enthusiasm to work and provide services ($\bar{x} = 4.38$); ability in job analysis, giving good advice, calm, and not expressing irritability when asked ($\bar{x} = 4.32$); being a good role model ($\bar{x} = 4.32$); being keen on using professional equipment ($\bar{x} = 4.30$); giving professional advice to colleagues ($\bar{x} = 4.30$); contributing to the enhancement of the university's reputation

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by participating national activities ($\bar{x} = 4.30$); working actively with no mistakes ($\bar{x} = 4.27$) including professionalism and keeping the clean and tidy working environment ($\bar{x} = 4.21$).

3. Factors affecting establishment's decision making for selection of cooperative education students could be divided into 5 parts: reputation, curriculum, activities, public relations, and location and environment.

3.1 Regarding the factors of reputation, the overall university image based on the Faculty of Liberal Arts was at the highest level ($\bar{x} = 4.20$). When considering each aspect of the factors of reputation, the research results revealed that the specialization of the Faculty of Liberal Arts was at a high level ($\bar{x} = 4.26$) following by providing professional services ($\bar{x} = 4.25$); knowledge of using professional equipment ($\bar{x} = 4.21$); providing clean and modern professional equipment ($\bar{x} = 4.20$); providing the professional equipment with international standard ($\bar{x} = 4.14$); and providing the specialized equipment and technology ($\bar{x} = 4.14$).

3.2 Overall factors of curriculum in the Faculty of Liberal Arts were at the highest level ($\bar{x} = 4.30$). Each factor of curriculum could be ordered as follows: hands-on students ($\bar{x} = 4.37$), the qualification of instructors ($\bar{x} = 4.36$); learning and teaching activities to foster students' creativity ($\bar{x} = 4.35$); the abilities of instructors to impart knowledge and experience to students ($\bar{x} = 4.35$); students' satisfaction toward teaching quality ($\bar{x} = 4.33$); learner-centered learning ($\bar{x} = 4.33$); adhering the professional ethics of the instructors ($\bar{x} = 4.32$); the ability of instructors to cope with changing world and technologies ($\bar{x} = 4.32$); the students' satisfaction toward learning resources provided ($\bar{x} = 4.32$); the teaching activities to support students' autonomous learning ($\bar{x} = 4.32$); clear and fair assessment and evaluation system ($\bar{x} = 4.30$); providing curriculum consistent with the needs of establishments ($\bar{x} = 4.29$); modern library system, computers, and information center adequately provided ($\bar{x} = 4.29$); the availability of RMUTT' teaching and learning materials ($\bar{x} = 4.29$); providing standard curriculum ($\bar{x} = 4.26$); the instructors holding academic rank ($\bar{x} = 4.26$); the instructors holding doctoral degree ($\bar{x} = 4.24$); and the number of students assigned per an advisor ($\bar{x} = 4.17$).

3.3 Overall factors of activities provided were also at the highest level ($\bar{x} = 4.24$). The results of each factor could be shown as follows: the activities for morality, ethics, and maintaining national values, custom, tradition, arts, culture, and identity ($\bar{x} = 4.32$); the activities to enhance the students' tradition and art experiences ($\bar{x} = 4.27$); the activities to motivate students' creativity ($\bar{x} = 4.25$); the activities to enhance the students' academic experiences ($\bar{x} = 4.24$); the activities for the students' mental and physical development

including sport skills ($\bar{x} = 4.19$); and the activities for volunteering ($\bar{x} = 4.18$).

3.4 Overall factors of public relations were at a high level ($\bar{x} = 3.97$). Each factor could be considered as follows: clear information ($\bar{x} = 4.15$); widely spreading information ($\bar{x} = 4.10$); information services ($\bar{x} = 4.08$); up-to-date information ($\bar{x} = 4.07$); providing the information on the website ($\bar{x} = 4.07$); having a good media image ($\bar{x} = 4.06$); providing information on posters ($\bar{x} = 3.99$); providing information through newsletters ($\bar{x} = 3.99$); the Faculty of Liberal Arts in the media regularly ($\bar{x} = 3.99$); public relations about the Faculty of Liberal Arts in journals ($\bar{x} = 3.94$); public relations about the Faculty of Liberal Arts on TVs ($\bar{x} = 3.93$); public relations about the Faculty of Liberal Arts in magazines ($\bar{x} = 3.83$); public relations about the Faculty of Liberal Arts on electronic sign boards ($\bar{x} = 3.89$); public relations about the Faculty of Liberal Arts in newspapers ($\bar{x} = 3.79$); and public relations about the Faculty of Liberal Arts in the radio broadcast ($\bar{x} = 3.76$).

3.5 Overall factors of location and environment of the Faculty of Liberal Arts were at the highest level ($\bar{x} = 4.24$). The analysis of each factor was shown as follows: ease of contact ($\bar{x} = 4.32$); suitable location ($\bar{x} = 4.25$); easily accessible by many routes of public buses ($\bar{x} = 4.20$); direction signs ($\bar{x} = 4.20$); adequate parking and security guards ($\bar{x} = 4.15$); beautiful interior decoration ($\bar{x} = 4.15$); spaciousness ($\bar{x} = 4.15$).

4. The correlation between the university image and establishment's decision making for selection of cooperative education students was positively correlated at the statistically significant difference of .05. The data were analyzed as shown in Table 1 below.

Table 1 the correlation between the student image and establishment's decision making for selection of cooperative education students

Factors	Student Image	Reputation	Curriculum	Activities	Public Relation	Location and Environment	Decision making
Student Image	1						
Reputation	.411**	1					
Curriculum	.572**	.715**	1				
Activities	.533**	.613**	.849**	1			
Public Relations	.365**	.475**	.501**	.436**	1		
Location and Environment	.434**	.531**	.663**	.621**	.723**	1	
Decision making	.573**	.551**	.665**	.669**	.405**	.655**	1

As can be seen in Table 1 above, there were six factors at a moderate correlation: the student image ($r = 0.522$), reputation ($r = 0.553$), location and environment ($r = 0.655$), curriculum ($r = 0.665$), and activities ($r = 0.669$); however, the factor of public relations was at a low correlation ($r = 0.405$).

5. The data analysis from Multiple Regression with Enter method between the student image and factors affecting

establishment's decision making for selection of cooperative education students showed the statistical significance at the level of .05 ($F = 18.585$, $p < .05$) as shown in Table 2. The predictive power was 59.20 ($R = 0.769$, $R^2 = 0.592$). The analysis also provided the regression coefficients of factors affecting establishment's decision making for selection of cooperative education students, namely, activities ($\beta = .305$); and location and environment ($\beta = .000$) that were at the statistically significant difference of .05. In addition, the predictive equation could be formulated as $Y_{\text{Decision}} = 0.104 + 0.305_{\text{Activities}} + 0.474_{\text{Location}}$

Table 2 The data analysis from Multiple Regression with Enter method between the student image and factors affecting establishment's decision making for selection of cooperative education students

University image	establishment's decision making for selection of cooperative education students				
	B	S.E.	β	t	P
(Constant)	.104	.441		.235	.815
Student Image	.201	.106	.172	1.913	.059
Reputation	.167	.133	.143	1.257	.213
Curriculum	-.012	.221	-.009	-.053	.950
Activities	.318	.146	.305	2.189	.033**
Public Relations	-.167	.085	-.212	-1.971	.052
Location and Environment	.444	.115	.474	3.860	.000**

$R = 0.769$ $R^2 = 0.592$, Std. Error of the Estimate = 0.376, $F = 18.585$, $P = 0.000$

V. DISCUSSIONS

1. The student image affecting establishment's decision making for selection of cooperative education students

The result was found that the establishments' opinions toward overall student image were at the highest level, and the factor of volunteering were at the highest level among other factors. This is because the establishments realize the importance of volunteering that leads to a good society. [3] studied seven desirable characteristics of cooperative students: 1) virtue and ethics ; 2)knowledge; 3) intelligence skills; 4) personal relation skills and responsibility; 5) Logic analysis, communication and technology application; 6) personality; and 7) human relations. Overall results were at a high level and these characteristics were applied to develop cooperative students effectively before working.

2. Factors affecting establishment's decision making for selection of cooperative education students could be divided into 5 parts: reputation, curriculum, activities, public relations, and location and environment.

2.1 The factors of reputation were at a high level; and when considering each aspect, it found that the most important factor was specialization of the Faculty of Liberal Arts. As Boulding [4] stated, the desirable characteristics of the organization were the corporate identity based on 'Good Corporate Citizen', for example, image of business owners'

knowledge and moral; business stability and growth; technological advancement including employees' working efficiency and human relations; social responsibilities. Harrison [5] also said that reputation was the perception of reliability, quality, and production and service standards. Reputation was the important factor that made the organizations successful, and it could represent corporate identity, standing out organization, physical indicator as well as values and ethics of the organizations. Leblanc and Nguyen [5] said that corporate identity was related to image of the organization in terms of reputation, logo, price, services, and advertisements that could be used for benchmarking. Organizational image was from the customers' impression that the quality of services was assessed until it got famous, and reliable from customers. Also, it was involved with internal management, leadership, personality, atmosphere, and services by customer requirements.

2.2 The factors of curriculum were at the highest level both overall and in each aspect. This was consistent with the research of [6] that showed the image of Burapha University at a good level that the lecturers had the ability to transfer knowledge and experience; and Burapha University had regular activities with the community and was an educational institution with a proud community. These results were compared by gender, program studies, domicile province and faculty of interest in Burapha University, and no difference was found.

2.3 The factors of activities were at the highest level that was consistent with [6] study that Burapha University had regular activities with the community and was an educational institution with a proud community.

2.4 The factors of public relations were at a high level. However, the research results showed that the public relations in the radio broadcast had the lowest average. This could be a guideline for future development because the radio is still an active medium, covers many areas, and is able to create immediacy with high psychological effects because voice and tone stimulates the listeners' imagination. Compared to other media, radio advertising is inexpensive, so it can increase frequency and broaden customer reach. Radio advertising is flexible because it can target specific demographic and market segments; and even illiterates can get the message. Leblanc and Nguyen [5] referred to service offering that there should be primary service and supplement service to support customers without waiting for a long time that could affect the negative image.

2.5 The factors of location and environment were at the highest level. Leblanc and Nguyen [5] mentioned that physical environment was the image that customers could perceive, and motivate employees to provide excellent services and to establish

interpersonal communication. The nature of customers has to be perceived and services should be provided by individual customer requirements. Interpersonal communication is established by behaviors and attitudes that indicate the quality of services and motivate customer satisfaction.

3. The guidelines for the students image improvement to meet the establishments' needs

3.1 Teaching and learning for academic and professional skills should be improved by encouragement and development of instructors and collaboration with the establishments to develop the quality of graduate students.

3.2 Teaching process and environmental management for each curriculum should be studied and developed in order to support the needs of the labor market.

3.3 Public relations for the student image should be done via a variety of media both online and offline.

3.4 The student preparation should cover English communication skills, social etiquette, teamwork skills, and self-confidence. The previous research of [7] about entrepreneurs' attitude toward English proficiency of the RMUTT interns found that the English language skills were at a moderate level and it was suggested that the students should practice using all four English skills with confidence.

VI. RECOMMENDATIONS

A. Recommendations for Practices

1. Students should get ready for work with a good personality and positive attitudes.
2. Students should be eager to learn new things and have English language competence as well as Thai language in order to effectively carry out the tasks.
3. Students should be dedicated, hardworking, and volunteering in order to find the best direction for their future career.
4. The Faculty might provide students with The experience in the foreign country to study the native speaker's culture and increase the students' communication skills with self-confidence.

B. Recommendations for Further Research

The research might be conducted by interview to get more understanding of the needs of the establishments as well as the students' problems in the workplace in order to find the right tools to prepare and support the students with the real-world working skills.

VII. CONCLUSION

According to the research results, the establishments' attitudes toward RMUTT image were recognized at a high level with student image, reputation, location and environment, curriculum, and public relations. The

universities produce the potential graduates to the establishments, so the reflections from them are the best tool in higher education to use as a guideline to produce the graduates based on the needs of the establishments.

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The Integration of Buddhist Arts and Sciences To Improve Quality of Life

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Abstract—The purpose of this article was to study and explain about the integration of Buddhist arts and sciences to improve quality of life. The authors studied and collected the data from Buddhist scriptures, texts, and related document about Buddhist arts and sciences to improve quality of life, and analyzed by using content analysis. Buddhism is a way of finding peace within oneself. It is a religion that helps the human beings to find the happiness and contentment. Buddhism have been involved in terms of philosophy, science and religion. The religion is involved principles and practices that are concerned to Buddhist principles and philosophy. For Buddhist science, it is the knowledge of mind and human emotions. The Buddha found that our desire for pleasant experiences and our aversion to unpleasant experiences gives rise to suffering. He also explained that all problems and suffering arise from confused and negative states of mind, and all happiness and good fortune arise from peaceful and positive states of mind. The Buddhist philosophy and social values are very similar to each other such as non-violence, not committing theft, refrain from sexual misconduct, always speaking truth, and refraining from abusing drugs or alcohol are some of the common concerns. The true spirit of Buddhism is of rationalism and free thinking that is influenced the intellectuals of the world. Buddhist philosophy asserts that it is our minds that contribute most significantly to our own suffering and that the mind can be deconstructed and reconstructed to give the individual a more stable sense of peace, happiness, and equanimity.

Index Terms— Arts, Buddhism, Improve, Quality of life, Sciences

I. INTRODUCTION

Buddhism is a pragmatic religion. It believes that the world in which we live is sorrow-laden and that it is possible to transcend it. Buddhism, it can be said, is primarily concerned with ways and means to get rid of this sorrow. Buddhist teachings have enduring relevance because it consistently relate death to life. It is usual to start dealing with death once that one is faced with it. Buddha said that one should begin a long time before, so that pain and anxiety do not interfere with one's ability to understand the situation. In the Buddhist doctrine, body and mind are not considered to be separate because independently existing entities are not thought to exist. Everything is intertwined and causally linked and things are constantly changing and regrouping. This means that transition and change are basic features of Buddhist teachings. We could say that the same applies to the human body, it is also constantly changing from birth to death and thus represents this thought. The body is perceived to be a teacher of impermanence. The

historic Buddha himself sought a condition that could not be shattered by death. Following his experience, he realized that whatever is born and died. This made him search for the true nature of things. Buddhism is considered to be a moderate religion without rigid formalities, in which compassion and respect for life are inherent and death is regarded as an integral part of life[1][2]. The Buddha found liberation from suffering by relinquishing his desires and aversions. He taught that such a state does not negate the existence of personal preferences, one still has likes and dislikes, but one's happiness is not dependent on them. The state of liberation referred to as enlightenment or nirvana is beyond words, according to the Buddha and many who have reached it since him. Instead of describing what enlightenment felt like, the Buddha would simply describe it as being free from suffering[3]. Buddha explained that all problems and suffering arise from confused and negative states of mind, and that all happiness and good fortune arise from peaceful and positive states of mind. He taught methods for gradually overcoming our negative minds such as anger, jealousy and ignorance, and developing our

positive minds such as love, compassion and wisdom. The Buddha wrote nothing, but his teachings were handed down through the disciples. Buddhism was also one of the radical movements, Buddhism is a path of practice and spiritual development leading to insight into the true nature of reality. Buddhist practices like [meditation](#) are means of changing yourself in order to develop the qualities of awareness, kindness, and wisdom. The experience developed within the Buddhist tradition over thousands of years has created an incomparable resource for all those who wish to follow a path which ultimately culminates in Enlightenment.

Buddhism is a psycho-ethical tradition which is manifested mainly in two paths as a process of thought of gradual pacification (Pariyatti) and a way of practical application in life (Patipatti). Thought unfolds the nature of reality, eradicates the ignorance and resents admonition for visualization of truth face to face. The only problem is the suffering of mankind. The solution is the attainment of a state of bliss and the path is the tri-stepped way, passing from one point to another. It is *Dukha* (suffering); the latter is *Nibbana* (Nirvana) and the path, the *Magga*. Non-violence (ahimsa) is one of the main of the teachings of the Buddha. Non-violent attitude towards all living beings, which is the first precept in Buddhism, is based upon the principle of mutual attraction and rightness common to all nature. Buddha openly opposed the caste system as propagated by the brahmanas and according to him no person could be superior or inferior in society merely by reason of birth[4]. Buddhist Philosophy is also interested in two main problems of human namely the problems related to human being directly, or it may be related between human and other human. Buddhist practice to be effective, a certain level of concentration is necessary in order to gain deep insights into reality through meditative practice. Scientists also studies mental aspects of human life and meditation has increasingly gained interested in the modern science world. Buddhism can be seen to have relevance to the commonly defined dimensions of sustainability and well-being. The highest purpose of Buddhist practice is to enlighten and end suffering.

II. OBJECTIVE OF STUDY

The purpose of this article was to study and explain about the integration of Buddhist arts and sciences to improve quality of life. The authors studied and collected the data from Buddhist scriptures, texts, and related document about Buddhist arts and sciences to improve quality of life, and analyzed by using content analysis.

III. WELL-BEING, WELFARE REFLECTING QUALITY OF LIFE

All human societies provide various welfare services to members who cannot earn their keep. In the process of modernization, much of these services were monetized and came under control of the state. We see this most clearly and in welfare arrangements for the unemployed, the sick and the elderly. This societal pattern is called 'welfare state'. Well-being and welfare are often come together in particular well-being and welfare. The level of well-being is believed to be higher in welfare states, and its distribution more equitable. This theory is tested in a comparative study of 40 nations 1980-1990. The size of state welfare is measured by social security expenditure. The well-being of citizens is measured in terms of the degree to which they lead healthy and happy lives[5]. Philosophical debates about these theories of well-being are sometimes informed by the defense of moral theories. For example, utilitarianism needs an account of well-being that could plausibly be said to be something we have an obligation to maximize. But these debates also answer to a variety of intuitions about well-being, some rather philosophical and some more common sense. From this perspective, a criterion of adequacy of a theory of well-being is its capacity to explain our intuitions. The divide between the subjective and the objective theories is partly based on conflicting philosophical intuitions about the source of value that inform many meta-ethical debates such as pleasure or desire, or does it depend on something outside the mind of the subject, such as objective facts about things in the world or human nature. However, important as different intuitions about the correct answer to this question are that we should not loose sight of the fact that there is a good deal of common ground in debates about theories of well-being[6]. The quality of life of the population is the degree of satisfaction of material, spiritual and social human needs. This concept is broader than financial security (standard of living) and an assessment of the human condition, and this estimate is based on one's own satisfaction of these conditions. Quality of life involves personal and national security, clean environment, economic and political freedom and many other conditions of human well-being that are difficult to measure. The task of improving the quality of life of the population is a nationwide challenge. The priority of government is to consistently improve the quality of life of the population, reducing poverty, ensuring decent conditions for life and development of the welfare state[7].

In Buddhism, the Buddha taught ways of welfare and well-being. He revealed to the true nature of the world. The Buddhism stated on maintaining a right relationship between

the self and the world, and stressed on happiness, sufficiency of virtue. Buddhist Philosophy inserts methodologies to end of suffering and share in the happiness, wisdom, peace and nirvana. The aims of Buddhism are to clear people's vision so that they will see things as they really are. With this insight to the true nature of things, the Buddhist can then understand that there is no point in trying to change the world, but that they ought to change themselves and their attitudes about life. It is up to them to make changes that will lead to wisdom and happiness[8]. The attempt of Buddhism is to bring in a value dimension to even such concepts as wealth (dhana) and poverty (daliddiya) that are usually interpreted purely in material terms. According to Buddhism, one may be very rich in material wealth, but poor in the moral riches. One can be said to be poor in an ethical sense not because one lacks material wealth but lacks the eight kinds of noble wealth (ariyadhana). Therefore, when we discuss the theme Buddhism and social welfare, we should not try merely to see how Buddhism fits into the common notion of social welfare, but penetrate deeper into the issue of how Buddhism reinterprets this notion in terms of its own philosophical and conceptual orientation[9]. In general Welfare and well-being are the fulfillment of a central human capacity. In Buddhism Buddhist welfare and wellbeing reflecting quality of life are based on an analysis of human nature and the human condition. Buddhist philosophy interpreted as a philosophy of life. The true spirit of Buddhism is of rationalism and free thinking. That is influenced the intellectuals of the world. Buddhism is a code of conduct than a religion. The Buddha has stated the Sila (Buddhist Precepts) on the basis of which people can live their life in peace and happiness. The highest purpose of Buddhist practice is to enlighten and end suffering. Although some may achieve it, but one needs to practice until perfect it to truly understand the essence of the path to enlightenment.

IV. BUDDHIST ARTS AND SCIENCES TO IMPROVE QUALITY OF LIFE

Buddhism and modern science is the major premise. There is much to learn from Buddhism for modern research methodology, particularly in the social sciences sphere. It demonstrates that particularly the Four Noble Truths (Dhammacakkappavattanasutta in Suttapitaka) constituted a framework for research designing, investigation and particularly problem solving: Dukkha as problem identification, Samudaya as causal investigation, Nirodha as possible or required solutions and Magga as recommendations or pathways for desired solutions. The

Four Noble Truths (FNT) can be considered as the foundation of the Buddhist philosophy and the other two methodological components identified and discussed in this investigation are the importance of independent observation (Kalamasutta) and dialectical causality or dependent origination (Paticcasamuppada)[10]. Dependent origination are part of the teachings of Buddha that analyzed the causes and conditions leading to samsaric life. In Bodhikatha of Vinayapitaka Mahavagga and Vipassisutta Nidanavagga Samyuttanikaya, both stated the events in the night of enlightenment that the Buddha took into thorough consideration on respective Paticcasamuppada (The Dependent Origination). While in Mahasaccakasutta, Nidanasamyutta Samyuttanikaya, the Buddha attained Pubbenivāsānussatiñāna in the first period of night, attained Catupapātañāna in the second, and attained Āsavakkhayañāna (knowledge that the outflows are extinct in the third period of night. To distinguish outflows by the process of Caturāriyasacca (The Four Noble Truths), it is to be concluded that though there are different in contexts, they are in absolute truth. The Buddha speaks of Paticcasamuppada in the light of theory of natural phenomena, while of Caturāriyasacca as the process of practice leading to get rid the outflows[11].

In Buddhist perspective, all phenomena have three characteristic marks: impermanence, selflessness, and satisfactoriness. The Buddha stated that happiness, as we ordinarily conceive of it, is an illusion. True happiness cannot be found in possessing things or satisfying our cravings. Rather, it involves an abiding sense of fullness and inner peace, an inner serenity that does not depend upon our life circumstances. The satisfaction of a desire is not a genuine benefit, it does not enhance the quality of our lives. As a philosophy of life, perhaps the most important insight of Buddhism is that genuine happiness is not contingent upon our life circumstances. We can be truly and deeply happy simply by connecting with the present moment without grasping or aversion[12]. Buddhist practice is process of arts and science to reduce suffering in individual group, and community using wisdom and interventions which aims to train the human mind to attain a state of equanimity and liberation. Since 2,500 years, Buddhism has been a choice of healing method for millions but little is known about the components of Buddhist practice from a psychological perspective. For example; Many empirically supported contemporary psychotherapies such as Mindfulness Based Cognitive Behavioral Therapy (MBCBT), Dialectical Behavior Therapy (DBT), and acceptance and commitment therapy incorporate various Buddhist practices and ideas into their treatment modalities.

Furthermore, there has been an increase in clinical and research endeavors to consider religiosity and spirituality in psychotherapy over the past decade. Due to these very reasons, it is crucial to demystify the process of traditional Buddhist counseling in order to increase mental health professionals' cultural awareness of this fourth largest religion in the world and provide considerations and recommendations for professionals who are interested in applying Buddhist ideas and practices in treatments [13].

V. CONCLUSION

Buddhist principles have been linked self as part of nature, and Buddhist practice facilitates knowledge of the constant changing pattern of nature. The psychological effect is detachment from anything. Buddhism focus on the present. Buddhism have been involved in terms of philosophy, science and religion. The religion is involved principles and practices that are concerned to Buddhism. For Buddhist science, it is the knowledge of mind and human emotions. For example, Mindfulness, compassion and loving-kindness are the most commonly integrated Buddhist concepts in psychological treatment, they have shown to be helpful for mental health issues for the treatment of depression, anxiety, self-criticism, shame, feelings of inferiority, and positive and negative psychotic symptoms. The Buddhist compassion and loving-kindness also offer a model for both healthcare professionals and medical ethics. The Buddha taught other monks that "He who attends on the sick attends on me." Another time the Buddha showed similar compassionate care to a monk with a repulsive affliction that had turned other monks away. The Buddha also taught that a good nurse should be knowledgeable of both medical procedures and the needs of the patient, and should perform tasks out of a sense of service rather than for the sake of salary alone. Loving-kindness and compassion should be guiding virtues [14]. The Buddha found that our desire for pleasant experiences and our aversion to unpleasant experiences gives rise to suffering. The Buddhist philosophy and social values are very similar to each other such as non-violence, not committing theft, refrain from sexual misconduct, always speaking truth, and refraining from abusing drugs or alcohol are some of the common concerns. Buddhist principles have been applied to help in several social context to improve psycho-social well-being and quality of life

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Study Factor according to the effect of Violence in family

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Abstract— Violence in the family which is the one of the most important problem, until nowadays and may occur in every family. It is a crime, not affected with the only one person but also other people and stability of whole societies. Because of without moral. The objectives of this research were to study the relation of relevant factor violence in family societies both physical and mental. Questionnaire was used as tool to collected data, and contained with theories laws. The research was conducted with head of family with in Thapra sub – district Bangkok – yai Bangkok for a total of 500 families Eventually, the data were analyzed by static tool such as frequency percentage, mean, standard deviation, chi – square and persons correlation coefficient. The level of significance at .05 was used to test hypothesis. According to the testing hypothesis of this research found that, there were 3 factors, including, gender, age level of education, occupation in come of family and spouse relationship related to physical violence and the other factors did not relate to both physical mental violence.

Keywords— Study Factor, Violence, family

I. INTRODUCTION

Social family must be the first important because they were close among member with in family. They consist of father mother and children then get warming according to Dhamma for a householder mean layman Dhamma 4 as follow, 1) truth mean the fact with in householder members, 2) passive mean inactive for all emotion, 3) patience mean endurance for all condition both internal and external, 4) giving mean give something for care to each other. Family violent was continue and concern problems not only one person but for family. It was social problems for a long time but social not to give attention for them at all. There were family violent rather regarded to be individual problem and just for family only. Another people should not participate, and then ravel measure for prevent family violent as one of criminal. So that, it was been support hidden family violent I social then it will be more and more next.

Domestic Violence means all action as attacked member in family to get hurt both physical and mental. It was by mean violent behavior such as sexual violate and push heart attack for family member event husband wife children or adults. There were many cases of violent example husband hit wife or many women were attacked from their couple. Parents or stronger attack ancestors or old people event body weakness persons. Those all conclude depend on economic social. But for wife attacked husband has been least.

However, the keynote as should be realized mean family was close up with children for long term. Then if have some violent in family and society, that mean children or teenage in family must be got victim for those criminal. In the same time, using violent in family was been criminal for the most children especially for children in society. They were may know other behavior criminal. By the present Thailand was concerning more violent which point that for one degeneracy in social. That mean problems for doing mistake for children among 7-18-year-old. There were used violent behavior that no different from adult in society too.

The interesting keynote so that, children and teenage doing violent because of their families in society or not. N the other hand, family violent have reflective to mistake for children or not. There were many violent took place all Thai society. From some news report family violent in B.E. 2548 of women friend foundation found that, there were more people request consultant rather all occupations and all revel of education. That mean, it was has some family violent case plus more from year 2547 as 22 percentage. That is mean violent enlarge more and more.

The important was just a little bit news happened. By the fact there were more violent that take place in family. Only that is not want to any news. Because that news will be changed life for minus. Then it may suspiciously and worry for worse case women friend foundation, 2547. Then those women who suffer from their husband or darling then social should know that case common for family. Governors should be mediated for couple compromise more than manage send them go to

court. By mean of, physical in family violent that means social harm as cannot seen. It was one criminal as happened with in roof of house as other people think that should more save. Therefore, this criminal case as very hard for preventing. Because of the most doers were family members. So that, it should be carefully or oneself prevent should be minded before overlook. That will be result for doing more violent until to be criminal cases.

When we consider for Study Factor according to the effect of Violence in family as concern with family violent as follows,

2.1 Social Structure, Thai social should be for Patriarchy or thinking system by emphasize power for man only. Though, social have the opinion of man power more than woman by mean that father was chief of family. He has right for rule over family including using violent system to command people in family as set too. So that, all these cases look like for still be in Thai society.

2.2 Risk factor system and social context by intimate society, it was source support violent as follow location for single house then poorly and earning until not mind for other. Some of value in society that look down woman weaken than man and then living by lonely for women. There where been violent more another society as without these problems.

2.3 Believing about relation for member in family, Thai has culture about thoughtful respect and care for adoration for other's right. So that, compromising harmony among family mean not to interfere other family especially for among person in family too. Those who were owner family would not like to interfere case in family also.

2.4 Relationship among person at home, that is chief of family who rule over at home especially for property and manage right for expenditure and other family. Then that way will show for other people accept by satisfaction.

2.5 Factor for individual, that mean data for relationship between couple woman and man. Then mostly man more making violent than woman by individual character about violent before. Therefore, when they were children may be ever to sue weapon or owner too. Some of them may be ever taking drug or have some serious from work for everyday life or lost position such as workless. Some of them may be have no skills for refrain anger and confliction. So that, coping for serious which commonly for people will have to confront those problems by fact the way.

Factor from 5 cases study have concerned with violent in family as mention before. They must be factor as concern about violent in 4 revels were revel of social society family and members. There were by mean of them had been for Risk Factor which bring to doing violent in family.

Though, in issues for problems violent in family will be reduced if society help for look for helpful and restrain for

nearly happening in their places. Then society should have been participated and known for their family matter. Therefore, to reduce some problems as consider by issues as follow,

(1) Social structure must be accepted right for equally between man and woman then accept about difference for sex. There were problems as bring for doing violent in family. If social accept that man must be more power then look at violent for common in family. So that, objective of society that want to family to strong will be accept less.

(2) Society and context have for Proactive Factor that family were beat for violent or not. Example stronger society network society people in society should have been happiness for their lives. Then social standard as have some influence for family and member of family should have to help for prevent and suppress all violent way. Because of if those societies not have any participation, then family violent should be cannot escape also.

(3) Therefore, when societies have action role then considerate case right respecting for other will take place. Then by case as within family should be by without concerning from outside that mean will keep family relation lasting.

(4) Family as society have participated and take care for no violent that mean man gets more power in house and have influence for all activities in family. Although, other families from that zone revere and consent for miss power then there were cases suitable or not.

(5) Outside people from family could be consider or not that those who doing violent for member in family. There were have base on how different such as social living factor and factor for environment as suitable for concern or not.

Family violent hat social must be learn about family studies from crisis and all media. Polemical subject between husband and wife or children in family. There where been from many source examples serious for budget working environment drunker and other drug taking etc. The most of all wife and children were have been for doing violent until get hurt both physical and mental too.

Concept for family relation about power and ranking, they show continue for using violent by themselves. Therefore, they can control and doing violent for family members also. Then when we consider about senior that concern for role and duty of man and woman. Then we could find that many institution event economies social politics and religions most agree with that senior system making man have more power than woman for married lives as all cases. So that, these social cases show man has more all power action overall more than woman at on. Women were set power less than event all profits. They must be look after children at home only. Then

when we took minus data from family to analyze that should know about family crisis. Though, we should support happiness in family then could look for preventing Violence in the Family as classify to be 2 categories as follow,

1. Wife Battering

2. Child Abuse

(1) Wife Battering it was taken place all societies (Wife Battering). The cause of these violent come from family member drunker then continue to conflict and quarrel in family. If we let them go on until cannot solving and then cannot control finally. There were many scholars have commented for violent took place because of many factors such as serious environment drunker and using more power from senior. Example husband who unsuccess for duty in social then they must do with nervous tension effect to wife and family member then if he was drunker must be done more violent. So that, we can summary about family violent took place when husband lack of status from social. He also failed power from outside then could not success any purpose then taking for doing in house. These cases must be continue studied by mean of take another factor for study too. Example social cultivate factor for psychology factor for social tension such as work less financial and the problems about healthy. There were mean factors for cause of chief of family interest for drinking and doing violent.

(2) Child Abuse then took place on various situations since because of poor have no chance then lack of basic factor for lifestyle example for food clothes residences and medicines for treatment until lovely warming as should have been in family.

Physical violent by mean force detain retard selling discard or starve by stray and without predestination. Some of them fragrances decimate and abortion because of not wanted. Some of countries have been war then children arm for doing soldier. They were been victim from combat since their age among 7-8 years old. Inhuman doing for children that scholars summarized cause from their comment due to social change. Social lack of regulation in family in clouding Urbanization too. So that, social abandon cultural value and fail for carry out one's duty as cause more risk for children.

Making understanding for Family Studies, there were many scholars using much theory especially for structure and duty theories such as studies family divorce and some problems of family too. The present scholars were used Family Process to study by emphasize with Bronfenbrenner. They present persons and family happiness as were intricate then must be studied. Although, some general environment for family education should care that how it was the best way their lifestyle accordance with expected. Then family got success

for all actions and have achievement as expecting by without all violent.

(3) The agreement for using power in family

- 1) Rules determine and set decision for using by stable rules.
- 2) Behavior action for changing by generously protection to each other and still and regularly.
- 3) Look after minors and children then take care couple lives for household by efficiency and stable.
- 4) Setting purpose of family as each member have participated.
- 5) Having flexibility and adaptation then accept regular development and in clouding all situations as may take place by not unexpected.

Family as have good healthy by without violent. They should have been negotiated and make open for understanding by friendly. They should be accepting concept agreement to each other. They should be used accepting more than confliction. So that, Stages of a Marriage as to concern for important with this research could regarding one on behalf in family lives. There were mix factors for individual person in family and then for knowing relationship for Stages of a Marriage too.

II. THE RESEARCH OBJECTIVES

- 1) To study family problems as lack of warming and still be living for solving problems and justice for family violent. It was be guide line for other society to interest for form studies as infect for knowledge happiness harmony. Then it was been applying for solving problem lifestyle by all correctly and traditional too.
- 2) To campaign reduce leave give up vice as effect for family violent then to develop lives quality for societies to be national term. Then taking moral ethical of nation people to be awareness for human right according to good governances.
- 3) To concern education institute as relate with society has realized warming support and enhance benchmark for moral ethical to eliminate violent for family. It will favorable for way of life in family in future by happily.

III. RESEARCH METHODOLOGY

A. RESEARCH DESIGN

This studying scope of research project has classified for 3 parts as follow,

- 1) Scope for matters mean study factor matter of each matter for each problem as cause of violent by questioners. Then hardship for present way for solving as concern with governance by suitable time. The commendation and understanding in problems as cause of violent and cleavage.

2) Scope for area mean all societies has been in Thapa subdistrict Bangkok Yai Bangkok as number 25 societies then each of 20 families.

3) Scope for target group which researcher define family within 25 societies. The example target group consist of chief of family chairman of societies each of 20 families.

B. Research Process

1) Individual factor as namely age occupation income education period for marriage and number of children have concern with attacked for physical of member in family.

2) Individual factor as namely age occupation income education period for marriage and number of children have concern with attacked for mental of member in family.

3) Relation in family has concern with attacked for physical of member in family.

4) Relation in family has concern with attacked for mental of member in family.

5) Recognition for right and duty has relation with attacked for physical of member in family.

6) Recognition right for lady's role has relation with attacked for mental of member in family.

IV. RESULT

From this research result then may have result benefit expect found that at least 3 points

1) This research result will help us to know condition of problems cause of problems then solution ringer's justice in family. Education studies commendation from each target societies conclude with situation for social environment and attitude value fashion. Then but lack of Dhamma principle from religion especially Buddhist. Because of Buddhist was good prototype for culture and traditional continue forever.

2) This research result will show to know how to study lifestyle in each society with all similarly and different points as reflect for plus and minus points life style society. There where been fundamental knowledge to educate and stop violent in family forever.

3) This research result will help to point out and support society member. They must be to contact for harmony mental development and cultivate for consciousness for children and teenage in societies. They must be known and avoid vices behavior as cause for family violent. They have to change their ethical for lifestyle in family all society also.

V. DISCUSSIONS

This research studies were for Study Factor according to the effect of Violence in family. Area population and target group were Thapa Societies. It was Survey Research and then present for this data analyze by classify 6 issues as follow,

Part 1. General character example group, it was described for general of them such as sex age education occupation family income, then period for marriage and number of children by using frequency and percentage.

Part 2. Analyze for family relationship, it was explained mean standard deviation and analysis by group reference. It was explained general example group according to independent and dependent variables.

Part 3. Analyze for right and duty for families and societies, researcher was conducted hypothesis according to equation by each one and explaining mean standard deviation.

Part 4. Analyze for kind of violent as take place, there were both physical and mental. It was got data as show by independent they explain by using mean and standard deviation.

Part 5. Analyze for kind of mental violent as take place, this result data was got from education variable and standard deviation. Then revel mean of violent as take place for mental of family members.

Part 6. Result from hypothesis, it was classified by data group to find relationship during age education occupation family income status period for marriage number of children. Relation of family for knowing right duty in family and society violent as take place.

9.1 For general data of example group. Collection data from example group, researcher take individual data to analyze for concluding general data by classify according to sex age education occupation family income period for marriage number of children.

Sex, percentage of answer question, it was classified according to answerers. There were women have more than men. Women were 256 persons calculate for 65.1, then for men were 137 persons calculate for 34.9.

Age, number and percentage of answerers classify according to age. There were found that the most ranking for 30-39 calculate at 39.4, then next for 40-49 years, calculate percentage 27.0. There were persons who have age 70 year up at the least calculated as 1.5.

Education, number and percentage of answerers classify according to revel of education at the most were primary revel calculate as 29.0. Then next were high school or vocational calculate as 27.0. Then the most answerers were bachelor degree be at least calculating as 1.3.

Occupation, number and percentage of answerers classify according to occupation calculating as 52.7, next below were housewife calculating as 17.5.

Family income, number and percentage of answerers classify according to family income. The most were answerers for family income were less than 15,000 Bath calculating as 57.0. Next below it was during a 15,000-24,999 Bath, calculating

as 25.7. There were answerers has the least than during 35,000-44,999 Bath calculating as 2.0.

Period for marriage / household, number and percentage of answerers classify according to status of answerers. It was found that marriage calculating as 83.2. It was less next below mean divorce calculating as 9.9. Then answerers who where been widow the least calculating as 0.8.

Number of children, number and percentage of answerers classify according to number of children. There were the most have 2 children then calculating as 42.2. Then next 1 child calculating as 27.0. Then those who have not children the least as calculating as 11.7.

9.2 Result from analysis for knowing right duty for family member as total mean percentage as 0.62 ($\bar{X} = 0.62$) at the most. By mean that revel for knowing right duty for family member and example society where been well.

9.3 Result from analysis violent for physical calculating as total mean percentage as 0.72 ($\bar{X} = .72$) at the most. By mean that revel for violent for physical was still.

9.4 Result from analysis violent for mental as total mean percentage as 0.35 ($\bar{X} = 0.35$) at the least. By mean that revel violent for mental was not violent.

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9.4 Result from analysis violent for mental as total mean percentage as 0.35 ($\bar{X} = 0.35$) at the least. By mean that revel violent for mental was not violent.

VI. RECOMMENDATIONS

A. Recommendations for Practices

- 1) Governors should have yearly budget to support and look after family still and without family violent.
- 2) All organizations should have participated for watching life Styr for social and societies.
- 3) All human being must be having all right equality so that, there were should equal lives by themselves too.

B. Recommendations for Practices

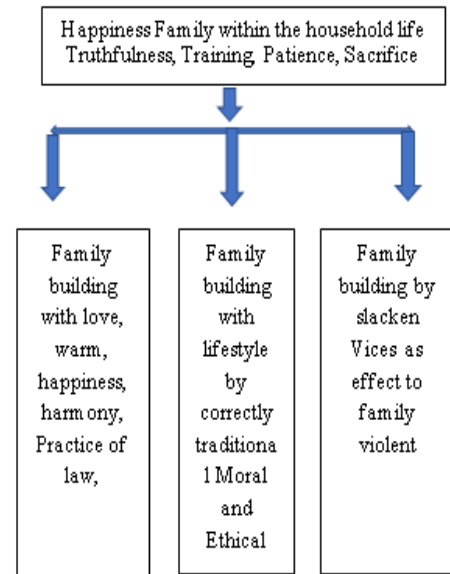
- 1) Suggestion for next research should be combined Buddhist theory and good governances to be concerned with curriculum for children studies more and more.

VII. CONCLUSION

Item was “Study Factor according to the effect of Violence in family” for 3 objectives as follow,

- 1) To study problems as family who lack of warming then still have the way for solving family violent. It was affected for knowledge peach love harmony which can be applied for lifestyle solving by correctly according to good traditional.
- 2) To campaign for reduce leave give up vices as cause for doing violent. Then lifestyle people in society to be national term. Therefore, enhancing moral and ethical by emphasize for human right then running along be good governance.
- 3) To study relationship with society by emphasize warming’ There were supporting with moral ethical for get rid of violent from family violent as take place in social for future lives by happily.

Summarizes according to Mapping as follow,



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Development of English Communication Skills in English Conversation Course for Nursing Students by the Application of the Blended Learning Approach

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Abstract— This research aimed to 1) evaluate English communication skills of nursing students who studied English conversation course developed by the application of blended learning approach in teaching and learning, and 2) survey students' satisfaction on the application of blended learning approach in teaching and learning English conversation course of Nursing students. The samples were 32 of 2nd year nursing students, Faculty of Nursing, Rajamangala University of Technology Thanyaburi (RMUTT), obtained by simple random sampling. The study was conducted by asking students to take English Conversation tests, pretest and posttest, which included listening and speaking parts, then attained the English Conversation course of 5 units for a total of 15 hours. The research instruments included 1) English conversation lesson plans, activities and blended learning materials for teaching and learning, 2) pretest and posttest that evaluated the use of English for communication in everyday conversation, and 3) the satisfaction questionnaire on English conversation course with the blended learning activities. The obtained data were analyzed by using t-test and the effect size to compare the ability to communicate in English in both before and after class, mean and standard deviation of the students' satisfaction in learning English conversation course with activities and teaching materials based on the blended learning approach. The results of the research were as follows: 1) English communication ability of the sample was higher after the course was statistically significant level of .05 and had a score difference of 5.12, 2) The sample group had a high satisfaction on blended learning activities in English conversation course

Index Terms— Blended Learning Approach, English Conversation, English Communication Skills, English Language Teaching and Learning

I. INTRODUCTION

English is the medium of communication around the world and is a global language that everyone in the global society should learn to communicate in both everyday life and professions. In Thailand, where Thai government stated in National Strategy Plan of the strategy for human capital development and strengthening in improving learning process and realizing multiple intelligence which extended a policy to develop English language communication skills ^[1] Then the practices for language learning emphasized in which people can develop the knowledge and ability of using English language for communication in order to live in international societies and to compete in economics situations with other countries as well as be able to live happily without barriers for self-development and lifestyle. Therefore, the teaching and learning of English must be continued continuously including

the need to find the most effective way to develop English language teaching.

Teaching and learning styles in the present time must be consistent with the life of the people in the society in order to benefit the most learning for life ^[2] ^[3] ^[4]. The face-to-face teaching style alone may be inadequate and may not correspond to different learners' characteristics (learning styles) which will enable learners to learn or understand lessons and to use in real lives. Therefore, self-learning through technology such as computers, iPads, tablets, smartphones, mobile phones, smart watch other artificial intelligence tools, etc. become a way to develop a model of learning of this new generation. In addition, the promotion of self-learning through different media creates convenience for both the learner and the teacher in situations where they are in different locations at different times in which enable flexibility and freedom for learners to further education and self-development. ^[4] ^[6]

Blended Learning model means the combining of different teaching methods in the teaching and learning; classroom teaching and learning, integration of technology in teaching and learning, self-directed methods which students can choose by themselves, group discussions both in person and on the web, teaching and teaching with a learning package via the Internet merged with normal classroom learning, e-learning and so on ... The blended learning strategies may be conformed in many elements that can make a student learn, such as learning from content submitted by e-learning tutors, Webinars, Conference call, Live or online meetings with an instructor, Teaching materials and other activities such as Facebook, email, chat room, podcasting, blog, Twitter, YouTube channel, Skype, web-board or other social media. [7]

It's assumed that blended learning could help student success more effective than face-to-face learning when students can work by themselves and teachers can support individual students who may need special attention. It is a learning model in the present and future that teachers should provide to learners in line with learners' needs. Blended learning not only has the advantages of meeting the needs of learners with different learning styles and is more effective than face-to-face or online learning alone. Blended learning can also reduce education costs. By organizing classrooms on an online area. The use of electronic equipment, and E-books which can be accessed digitally, will reduce the cost of purchasing textbooks, equipment, travelling, and other expenses in educations. Adopted software that automatically collects student data and measures academic progress, providing academic data and collecting scores automatically will be good advantages for teacher, students and parents. Student attendance system and study time will help assure the responsibility and this system will accommodate talented students or students with extracurricular interests provided by the school. It also gives the freedom to study with learners of different skill levels, studying at their own pace and speed. [9]

The Blended Learning model has emerged in a number of discussions among educators, but it first clearly appeared in the 1960's, decades later, until the end of the year. 1990 when the blended methods was expanded the use of diverse technologies combined with classroom teaching and learning in 2006, the Blended Learning Manual (Blended Learning) was published by Bonk and Graham [8], focusing on blending one-on-one learning with learning. Teaching through computers. "Researcher Norm Friesen defines a blended learning model as the possibility of teaching and learning by combining the Internet and digital media with an organized classroom format"

The meaning of blended learning is a system of teaching and learning that combines face-to-face learning. With teaching and learning via computer networks and there is a definition of blended learning as learning that the learner gains mass. Learning experience independently through a computer network system by Students can control themselves. Transform the way of self-learning in terms of time, place, and direction And their own learning rate Some of you concluded that Blended Learning is a learning program that uses a combination of e-learning or e-learning with classroom learning. [11]

The blended learning styles offered by education researchers and thinkers are varied and have different teaching and learning styles which may have any characteristics Combined from the following teaching and learning styles [12][13][14][11][12] [13] could be concluded as the following characteristics.

1. Faced classroom teaching (face-to-face) or traditional teaching style which emphasizes lectures, explanations, and teacher-centered presentation of activities.
2. Teaching in the classroom, but supplemented by digital technology media.
3. Knowledge-based instruction in which students rotate through knowledge-based activities with different characteristics together which the teacher provided.
4. Teaching in the classroom, but students study from an online or offline study program as directed by the teacher.
5. Learning and teaching with online learning programs without students having to attend class.
6. Laboratory teaching with the students operating by themselves may or may not have a teacher to provide assistance.
7. Self-study by students who decide how to learn.
8. Studying in pairs or group activities, organized in class or online groups.
9. The teaching and learning that the teacher teaches through an online communication system in real time.
10. On-site learning with an educator or an expert, with or without a teacher.
11. Learning from on-site experience
12. Learning from attending conferences, seminars or events that are held and can enhance knowledge and experience in the subject learned. And so on.

Whereas the strategies for managing media communication between teachers and students may be able to be organized as convenient and appropriate, such as using computer programs applications that support learning social media learning through e-learning programs, conferences, seminars through Facebook, line, Google software, Microsoft or any other LMS system with tools that students can use, such as desktop or laptop computers, mobile phone, tablet etc.



Figure 1: Key Activities in Blended Learning Approach in English Language Teaching & Learning

The blended instructional design based on the above activity guidelines and also based on course goals or objectives. By analyzing the course goals, which content, knowledge, skills, and experiences, teachers will get content and context to provide to students. Then, the design, development and teaching and learning stages will be in line with those goals. Teacher may use the same teaching method but use different activities in teaching and evaluating students or teach different contents by using various activities which are suitable for the students. Teachers may choose to teach one skill by organizing a combination of activities. Or they may teach you different skills with various activities suitable for each skill. It depends on the teacher's judgment with blended learning approach in their mind. The most important thing in designing course upon blended learning approach application was the course should be well designed and prepared as well as preparing careful blended lesson plan that is consistent with the objectives, courses, content, teaching activities and assessments. [6] [12] [13]

From research studies of experts in integrated teaching and learning management in Thailand, found that teaching and learning management by blended learning process. Help the students learn better and be satisfied in their learning. In this way, because it is consistent with the current living as well as responding well to the needs of learners with different learning skills. [7] [6] [15] [12] [13] [14]

Many studies, research and experiment with the blended learning process with learners. Were found to be effective in promoting learning. And the development of learners with different learning skills. And the use of technology in teaching and learning will make it more interesting and effective. [11] [10] [16] [17] [18] [19]

II. RESEARCH OBJECTIVES

1. To evaluate English communication skills of nursing students who studied English conversation course developed by the application of blended learning approach in teaching and learning.
2. To survey students' satisfaction on the application of blended learning approach in teaching and learning English conversation course of Nursing students.

III. RESEARCH METHODS

A. Research Design

1. The design of this research is one-group pretest-posttest experiment.
2. The design phase consists of
 - 2.1 Determination of learning objectives according to English Conversation course and blended learning activities which considering individual differences.
 - 2.2 Identification of knowledge categories content and skills that need to be developed in the learners
 - 2.3 Setting the context in teaching and learning
 - 2.4 Design of blended learning lesson and activities practical training and experiential training that fosters knowledge and skills according to the stated objectives.
 - 2.5 Designing or selecting instructional processes for learners such as self-study. Cooperative learning as a discussion group, etc.
3. Stage on the development of lessons and activities development and teaching and learning management by the application of blended learning approach which was designed in stage 2.
 - 3.1 Classroom Teaching: Lessons focused on teaching and learning in the classroom which teachers can use or not use online technology materials. Group learning or matchmaking Laboratory learning with or without a supervised teacher
 - 3.2 Integrated technology by online teaching and learning: Lessons and learning management through technology media provided by teachers in a combination of time. (Synchronous) or not merging time (Asynchronous) without students in the classroom.
 - 3.3 Self-Study: Lessons focused on self-learning of the learners. In which the learners can choose their own sources of knowledge, information, experiences, educators, and teachers may define learning boundaries.
 - 3.4 Group discussion and Experienced Exercises: Lessons focused on on-site experience training by the participation in organized events or seeking knowledge from specialists (foreign teachers) to enhance appropriate knowledge and skills and fulfill the purpose of a predetermined lesson or course.

4. Design and development the instruments for the studies; students and teacher manual, worksheet, test papers, course materials, online materials, environment, questionnaire to survey satisfactions.

B. Research Process

The samples used in the experiment of blended learning methods obtained by simple random sampling of 32 persons from 64 of 2nd year Nursing students, Rajamangala University of Technology Thanyaburi, who enrolled in English Conversation course in the second semester of academic year 2019. The sample group was in a great need as they have to practice internship in hospitals in a near future. Therefore, developing communication skills is important for them. And this group of students still have a modern attitude towards the use of new technology in teaching and learning. They also have good academic motivation as English Conversation is a compulsory course which they have to enroll for the degree.

The research tools were: 1) Pretest and Posttest. 2) English Conversation lessons focus on English for communication in everyday life and 3) Student satisfaction questionnaire. It consists of the following essence. Part 1 General information of students. Part 2: Satisfaction in learning English conversation applied by a blended learning approach. Part 3 Comments and suggestions on the blended learning approach teaching and learning. The experimental site and collecting data from this research study, the details of the research process are as follows

Step 1: Design Phrase: Context Analysis for operation of English Conversation course, equipment, and environments.

Step 2: Design Phrase: Development tools and teaching materials by the application of blended learning approach for teaching English Conversation course.

Step 3: Try-out Process with group of 3 students similar to the sample group.

Step 4: Improve the tools and materials and apply to the sample group

Step 5: Survey the satisfaction.

IV. RESULTS

The methods of teaching according to Instructional Model based on Blended Learning approach could help learners achieve maximum learning. According to the data from reviewing documents and research which found that online group discussions, self-study or Self-directed Learning, studying through pre-packaged programs on smartphones or tablets by themselves and/or with teachers in the classroom with or without electronic media. It is a blended teaching process that has been accepted that led to the development on learners' achievement in learning. The following table showed blended learning methods with activities and

evaluation which suited to learners different learning styles and identified characters of blended learning approach. The evaluation was designed to answer the course objectives; 1) to develop listening and speaking skills of students, 2) to enhance communication skills in real life, and 3) to encourage learners to communication in English language in everyday situations.

Table 1 Activity characteristics according to the blended learning approach

Teaching methods	Blended Learning Methods	Blended Learning Activities	Evaluation
1	Class-based teaching by teachers with or without electronic media	The teacher presents the lessons with materials according to the teacher's aptitude.	Listening, Speaking test, and paper test
2	Group Discussion: Face to Face and on web board and interview foreign teachers	The teacher defines the topics and details to discuss and assign tasks to do.	Observations, attending group discussions, and the contribution made. Recorded interview.
3	Studying with on-board lessons on the web (Web-based Program), via PC, Laptop, smart phone or tablet	The teacher selects a program lesson to study according to his needs and assign tasks to	Record the attendance and grades in the program.
4	Choosing a self-study method (Self-directed Learning) through social media (YouTube, Facebook, Line, IG, Twitter, blog, website or else) upon demand of students' need (students specify learning methods in the assigned subject line)	The teacher gives the desired output according to selected self-study methods.	Listening, Speaking test, and paper test
5	Live online tutoring by MS Teams channel	Teachers make appointments with students and conduct live lessons online where students can join a group to interact with their teachers.	Listening, Speaking test, and paper test

Whereas the principles for designing such activities obtained from relevant theoretical reviews and from studying former research data and results, therefore, a method of learning that can be considered as a combination of digital technology is involved in the organization of teaching and learning activities by itself. The selection of content that is used to communicate in everyday situations which topics included; Nice to meet you, Meet my family, Weekdays and Weekends, Our neighborhood, Let's catch up encouraged students to engage in own experiences and realities which help motivate them to participate more and more in blended learning activities. The course contents was well selected by considering students' opportunities to communicate with foreigners in their daily lives and work practices. With the flexible evaluation methods with a focus on listening speaking test, students might feel more relaxed to perform their communication skills and abilities.

Table 2 Details of lessons used in teaching and learning according to the blended learning approach.

Chapter	Chapter title	Function language	Situation used
1	Nice to Meet You	Hospitality vocabulary, structure and expressions Introducing yourself and others	Getting, introducing yourself Introducing others, starting conversations with new people, Talking about personal profiles
2	Meet My Family	Structural vocabulary and expressions used for talking about jobs and families' members	Talking about family members and jobs, Describing Jobs' duties, pros and cons
3	Workdays and Weekends	Structural vocabulary and expressions language used for describing routines and everyday activities	Talking about routines, free time activities, telling times and frequency
4	Our Neighborhoods	Structural terms and language expressions used for describing places and giving directions	Talking about places around the neighborhoods, locating and giving direction
5	Let's Catch Up	Structural vocabulary and expressions for the language used for making invitation and talking about food and drinks	Making invitations and talking about food and drinks, suggesting restaurants

It can be seen that the content and situations in teaching and learning followed a blended learning methods focused on the development of English communication focusing listening-speaking skills by organizing the lessons which was suitable for practical application in the communication of the students.

Pretest and posttest scores of sample groups who have passed English Conversation course with the application of blended learning methods in teaching and learning appeared that the scores after study is higher than the score before the studies. The highest pretest score was 41 and the lowest is 13. The highest posttest score is 84 and the lowest is 49. The difference between the pretest and posttest scores is 41 and the lowest is 36. Where the average score for English communication after study was 55.63, which is higher than the pretest score of 29.50. The mean difference before and after study is 26.13.

In addition, the result shows the statistical value t equal to 36.68. This demonstrated that the English communication ability of the sample group after learning the English for Communication model based on the Blended Learning approach was higher than before. Statistically significant at the 0.05 level ($Sig = 0.000 \leq 0.05$). The analysis of the effect size of the direct speaking score before and after the training of the sample was 5.12. Which had a high level of difference in scores before and after the study, with all learners in the sample. There is an increase in scores from learning English for all occupations.

The satisfaction of the learners	Mean	S.D	Translate
1) satisfaction with English conversation course with the application of Blended Learning approach	4.25	0.58	high
2) satisfaction with the content topics	4.75	0.63	highest
3) Satisfaction in teaching and learning activities	4.66	0.61	highest
4) Satisfaction with the evaluation method	3.76	0.78	moderate
5) Satisfaction in an instructional environment and instruments	3.97	0.82	moderate
6) Satisfaction teaching by classroom teachers	4.20	0.53	high
7) Satisfaction with the students' choices of learning methods	4.85	0.43	highest
8) satisfaction in learning in group discussions	4.43	0.57	high
9) Satisfaction in learning using a package program	4.39	0.59	high
10) Satisfaction in learning by live online teaching	4.30	0.61	high
Total	4.36	0.62	high

It can be seen that the students were satisfied with the students' choices of learning methods at the highest level at 4.85, then the content topics at 4.75 and the teaching and learning activities at 4.66, respectively. According to the students satisfactions on the evaluation methods at 3.76 and the instructional environment and instruments at 3.79, it's assumed that the technological equipment was very important in performing and operation blended learning approach into real teaching and learning situations.

V. DISCUSSIONS

The students in sample group was based on English Conversation course which consisted by the proper curriculum so the students felt that they need higher scores in order to get good grade in this subject. This attitude toward the subject allowed them to work hard with less enjoy working together in some activities as you can see from the result, the students showed only 3.76 of satisfaction level in evaluation methods.^[11]

The requirement for making clear understanding of what instruments were needed for the operating of blended learning approach between teachers and facilitators was a crucial matter. The stuck of internet signal and the shortage of computer PC disappointed students who preferred to use wide screen of computer for clearer image and nicer sound. This effected in the score of satisfaction on environment and instrument at 3.97.

It was also found that Learners have a need for the readiness and ease of use of digital technology for their education. Because in this research study, it was found that the students had obstacles in the use of learning equipment, namely computers and software. Therefore, it causes some delays and disruptions to online searching for information and learning. However, the use of the blended learning curriculum has significantly helped learners improve their English

communication skills. Because of the combination of technology that students use in daily life to participate in teaching and learning as in the former studies.^{[5] [6] [20]}

The teaching and learning using a blended learning approach should include information on the needs of all areas involved such as learners, instructors, school administrators at all graduate levels and support staff or employers in order to obtain information that is truthfully correct in the study. The analysis of the current social situation on digital technology, educational software, and social environment were important factors in the development of blended learning approach in teaching and learning as in the former studies.^{[10] [16] [17] [18] [19]} In summary, the obvious advantages of blended learning and should be used in modern day teaching and learning to keep up with the changing needs of education include:

1. Responding to the needs of learners with different learning styles (Learning Style) due to the various teaching and learning styles that allow each person to learn according to their own aptitudes and have Equality
2. Able to attract and stimulate the interest of the learners because the learners are used to learning in the classroom. And the use of technology in daily life. The combination of these two things makes the learner more comfortable and familiar.
3. A blended learning model offers self-study opportunities at a time and place that are convenient for them. And can also choose what interests you. It is the most effective learning method in teaching and learning management. The blended learning model supports the development of individual learners to have the potential to develop themselves according to their needs and aptitudes.
4. Reduce education expenses and budgets. Preparation of publications Site preparation and teaching materials Plus the use of less specialized tutors
5. It is the development of teaching personnel to have various abilities. Able to carry out research work Academic Service and more creative work when organizing their own courses in a combination can set the time to work more conveniently
6. Course connection and synchronization is easy. This is because the teaching and learning management information system is mostly digital. This makes the collection of credit banks or online open educational systems (MOOCs) convenient. It may be classified as an activity or part of teaching
7. A blended learning management model Responding to a new way of life (New Normal) in the changing conditions of society and environment that occur all the time. A wide variety of teaching and learning styles Make students and teachers familiar with the application and creation of learning to suit the situation around them. Has fluency in problem

management and is able to change well to the environment around him. And also cultivate ideas Develop self-learning skills throughout life (Life Long Learning) in the learner systematically.

VI. RECOMMENDATIONS

A. Recommendations for Practices

The recommendation for practices were as following;

1. The readiness of students in learning by this approach, students should have a level of digital literacy which they can cope with learning by using new technology and software.
2. The sufficient equipment and instrument used in teaching and learning.
3. The blended environment has to be well prepared.
4. The effective design of course curriculum, materials and environment.

B. Recommendations for Further Research

1. The further study should be expanded to use the blended learning curriculum model in teaching a course in order to find suitable curriculum styles to be used in teaching and learning
2. There should be research and development the method for assessing learner performance that is most suitable and effective with blended learning approach.
3. There should be in-depth student interviews to gain an understanding of their needs on learning in order to create the best learning experience for the learner.
4. There should study for suitable environment for blended learning approach in order to enable students to learn comfortably and to develop knowledge and competence arising from effective blended learning approach.

VII. CONCLUSION

It can be seen that blended learning is very beneficial for learners' learning and it is a style that deserves to be used in the social situation at the moment, the combination ways of teaching methods to develop people's intelligence by using technology to drive the global society. It is a suitable integration and approach to education for the present and the future. However, this form of education, should be in more research study. Extensive in the form of activities that make students most successful, the use of technology for teaching and learning based on this blended learning approach may be disrupted, inconvenient or delayed. This must be prevented from problems that arise by preparing and understanding the students first. And there should be a support system that can be replaced while the other one may be damaged or unusable. The effective well-prepared student manual may help students

to be more comfortable and enjoyable to learn by the Blended Learning curriculum,

Therefore, recommended success factors of implementing a blended learning model in teaching and learning may be concluded in 4-key factors:

1. Teacher with experienced in curriculum design, educational technology and blended learning approach, seems faster on the use knowledge course contents and the use of media technology in teaching with corresponding systematic assessment. This is a reason for training teachers on the application of blended learning curriculum.

2. Methods introduced in blended learning approach will serve different teaching and learning styles.

3. Course contents is important to organize activities in accordance with the knowledge and skills needed to develop learners. Therefore, by analyzing the content and skills clearly and clearly, it will be able to use the appropriate learning activities appropriate to contents.

4. The organization and resources to support the teaching and learning according to the integrated learning model are very important parts. If educational institutions are ready to support in tools, internet system, computer network connection, software for online teaching materials, multimedia, security systems, confidentiality system, classroom privacy, supporting information (Database) and so on, those are necessary factors for teaching and learning by blended learning approach successfully.

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The Challenge of Thai Disabled women

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Abstract— *The study of the situation of Thai disabled women (Torsangrasmee Teetakaew, 2021) has an interesting data that shows the increasing number of disabled women during the next 20 years. This is a big challenge for the preparation of the quality of life for the disabled women living through the aging society. The objectives of this research are to estimate the number of disabled women in Thailand over the next 20 years and analyze the situation by using a sample questionnaire of 2,300 disabled Thai women from 30 provinces as well as from in-depth interviews from 10 leaders of disabled women in various activities.*

The results of the study showed that the number of women with disabilities will increase from approximately 990,419 in 2021 to 1,014,015 over the next 20 years, which is a 1.95% increasing rate annually. The increasing rate of disabled women aged 60 years and above is 3.62% per year. In contrast, the percentage of younger age group will be increasing gradually at 1.44%, 1.14 %, 1.17 %, and 0.85 % for age group 0-5, 6-14, 15-21, and 22-59 years old accordingly. When classified by the type of disabilities, it was found that the number of women with disabilities increases across all types. There is an increase of approximately 1.78 - 3.01% per year for intellectual disability, learning disability, and visual disability. These types have a higher rate compared to other types of disability.

The study of the situation of women with disabilities also indicated that 50% of the samples have a monthly income of less than 5,000 Thai baths and 24% of the disabled women didn't receive an education. If education is encouraged, this could result in an increase in employment rate and higher quality of life for them. Disabled women also need government services for careers, employment, and income for their self-support. However, the spread of COVID-19 is also a big concern among disabled women. They need more support from the government for health prevention and living standards during this crisis, as well as enough sustenance, data and information, and technology and tools support. In conclusion, the challenge of Thai disabled women is from the soon-to-come aging society, which can be prepared by using and promoting the concept of active aging to elevate the living quality for all Thai disabled women in the next 20 years

Index Terms— *Thai Disabled Women, Aged Society*

I. INTRODUCTION

To live in a happy society, everyone should live in a good environment. The environment that no one is left behind, especially disabled people, elder, low-income, and disabled women. Disabled women are one of the priority topics in Thailand. In 2017-2021, the second edition action plan to improve the quality of life for disabled women is made with the motto "Disabled women can receive equal treatment and to not be discriminated against." Under four main strategies, 1) Encouraging disabled women to receive their basic human rights, welfares, and opportunities, 2) Encouraging positive and healthy mental health to all women, 3) Protecting women from all kinds of violence, and 4) Encouraging and empowering women.

It is important that Thai society care and give value to disabled women. Considering the past statistic from the Department of Empowerment of Persons with Disabilities and the Ministry of Social Development and Human Security from 2015-2020, the result shows that the number of disabled women increases every year. In 2015, the number is 604,536. In 2016, the number is 705,930. In 2019, the number is

990,395. And in 2021, the number is 1,014,015 and will continue to increase to 1,386,088 in the next 20 years.

As the number rises, comes the issues for people with disabilities community including understanding their rights and not to be the victim of discrimination. Based on the research, disabled people have experienced discrimination within the family as well as sexual assault. These issues are still happening in Thailand. The question is "Why aren't these issues fixed yet?" And if the number of disabled women continues to rise, we, as a demographer and a member of the Department of Empowerment of Persons with Disabilities, need to find the solutions to this issue. This research analyzed the issues by using the 2015-2020 data from the Department of Empowerment of Persons with Disabilities and population estimation data of Thailand from 2010-2040 (revised version) of the Office of the National Economic and Social Development Council. The data were analyzed to be used to understand the root causes better in order to come up with a constructive solution to help women with disabilities in the future.

II. RESEARCH METHODS

The method used in this research is the Mixed Method which is Quantitative Research, Survey Research, and Qualitative Research, as well as In-depth Interview.

A. Qualitative Research

Qualitative Research is a study of concepts, theories, laws, and policies that are for disabled women. These are guidelines to create research tools and In-depth interview questions to ask seven disabled women. The main points asked in the questions are:

- 1) Accessibility to basic rights and services received by people with special needs.
- 2) Anything related to disabled people having access to basic rights and services.
- 3) Issues confronted from trying to receive basic rights and services.
- 4) Experiencing discriminations from trying to receive basic rights and services.
- 5) Proposal regarding the solutions to the issue as well as new rules and regulations.
- 6) Policy and campaign to support and protect disabled women.

In each interview, the researcher recorded the voice memo in order to write scripts, analyze, and conclude in this research.

B. Quantitative Research

Quantitative Research is divided into two parts:

- 1) Inserting the population data from the past five years (2015-2019) into the analyzing tool, the predicted numbers of disabled women in the next 20 years can be determined. The method to find the prediction is as follows:

Step 1: To predict the number of disabled women in the future, the first thing to do is to categorize them into the age group.

Step 2: Calculate based on the segment (0-5, 6-14, 15-21, 22-59, and 60 years and above) by distributing the number of each group equally.

Step 3: Use the equation: The number of disabled women in the future (based on age) = number of disabled women in the future of each age group * the ratio of disabled women of each age segment.

Step 4: Use the equation: The number of disabled women in the future (based on the type of disability) = number of disabled women in the future of each age group * the ratio of disabled women of each age segment (For further explanation, visit Part 2 of Data Analysis)

- 2) Collecting data process. In collecting data, the research gave out a survey to each woman with special needs around the country. In each province, 30 surveys were given out. In

total, 2,300 surveys were used as part of the data. The surveys were divided into two parts as follows:

Part 1: The questions asked about the basic information of the respondents such as gender, age, highest education, status, number of children, current address, career/job, and salary per month, source of income, type of disability, cause of disability, and caretaker.

Part 2: The questions asked about how many sources and understanding of human rights and welfare they receive from the government, as well as rating satisfaction score to services they receive.

C. Analyzing the data

Analyzing the data is divided into 3 parts:

Part 1: Analyzing the main topics like disabled women, situations, and accessibility to human rights using the data from the past five years (2015-2019) and from the surveys.

Part 2: Analyzing the number of disabled women in the future by using the data from the past five years (2015-2019) to predict the populations of disabled women in the next 20 years.

Part 3: Suggestions and solutions to improve the quality of life for disabled women by using the data from the questionnaires and in-depth interviews.

III. RESULTS AND DISCUSSIONS

Part 1: The main issue for disabled women, situations, and accessibility to the human rights of disabled women in the current situation.

Given the number of people with disabilities around the country in 2019, 2,006,775 people are holding the "Disability Card." The ratio of male and female is about the same at 959,133 females (47.79%) and 1,047,642 for males (52.21%). Separating the number based on age group, the study found that 13,904 people are children and young adults (0-21 years), 5,808 of which are female (41.77%). Most of them have a disability related to their brain and ability to think. 68,117 people with disabilities are the schooling age, 25,201 of which are female (37%). 845,050 people with disabilities are in the age gap between 15 to 21 years old, 333,318 of which are female (39.44%). Most have physical disabilities. 71,434 people with disabilities are of working age, 26,354 of which are female (36.89%) and have disabilities related to their brain. 1,079,503 of the people with disabilities are 60 years and older, 26,354 of which are female (36.89%) and have disabilities with movement.

Table 1.1 Number and percentage of disabled women in 2019

Type of disabilities	Age									
	0-5 years		6-14 years		15-21 years		22-59 years		60 years and older	
	People	%	People	%	People	%	People	%	People	%
Visual	159	2.74	854	3.39	1,241	4.71	25,696	7.72	75,549	12.70
Hearing	496	8.54	2,272	9.02	2,759	10.47	50,573	16.41	131,558	22.12
Movement	1,548	26.67	5,439	21.54	5,700	21.63	129,322	42.13	342,153	57.53
Mental and behavior	24	0.41	168	0.67	420	1.59	39,369	12.83	20,129	3.38
Intellectual	1,700	29.27	7,990	31.71	9,141	34.69	37,657	12.26	5,739	0.97
Learning	27	0.46	951	3.77	909	3.45	1,039	0.34	301	0.05
Autistic	245	4.22	1,211	4.81	583	2.21	493	0.14	34	0.01
Multiple	1,607	27.67	6,302	25.01	5,534	21.00	25,323	7.60	18,114	3.05
Other	1	0.02	14	0.06	67	0.25	1,772	0.58	1,322	0.19
Total	5,806	100.0	25,201	100.0	26,354	100.0	306,864	100.0	594,699	100.0

Based on table 1.1, disabled women in the age gap between 0-5, 6-14, and 15-21 years old tend to have disabilities related to intellectual (29.27%, 31.71%, and 34.69% consecutively). The disabled women in the age gap between 22-59, and 60 years and above tend to have disabilities related to movement (42.13% and 57.53% consecutively). The main reasons for disabilities are unidentified by the doctor (50.72%), unknown (23.25%), and disable from illnesses (19.13%).

Table 1.2 Number and percentage of disabled women in 2020

Type of disabilities	Age									
	0-5 years		6-14 years		15-21 years		22-59 years		60 years and older	
	People	%	People	%	People	%	People	%	People	%
Visual	141	2.63	795	3.16	1,178	4.46	24,544	7.33	75,583	12.06
Hearing	447	8.33	2,220	8.86	2,653	9.97	52,968	15.79	139,394	22.30
Movement	1,419	26.43	5,285	21.49	5,669	21.47	134,500	40.17	342,730	58.02
Mental and behavior	19	0.35	157	0.63	416	1.58	40,567	12.11	21,581	3.50
Intellectual	1,589	29.23	8,012	31.98	9,280	35.06	40,072	14.56	6,184	0.99
Learning	27	0.50	1,006	4.02	1,023	3.94	2,145	0.64	329	0.05
Autistic	211	3.95	1,343	5.35	659	2.50	1,149	0.34	34	0.01
Multiple	1,534	28.58	6,129	24.46	5,524	20.95	29,404	8.70	18,240	2.92
Other	1	0.02	10	0.04	48	0.18	1,606	0.48	975	0.16
Total	5,386	100.00	25,696	100.00	26,420	100.00	334,855	100.00	625,216	100.00

Based on table 1.2, disabled women in the age gap between 0-5, 6-14, and 15-21 years old tend to have disabilities related to intellectual (29.23%, 31.98%, and 35.06% consecutively). The disabled women in the age gap between 22-59, and 60 years and above tend to have disabilities related to movement (40.17% and 58.03% consecutively).

Table 1.3 shows the different causes of disability. Most disabled women with visual disabilities are caused by accident (91.62%). Most disabled women with movement disabilities are caused by a genetic factor (16.64%) The details are in table 1.3.

Table 1.3 Shows the type of disability and the causes of the disabled women

Type of disabilities	Illness		Genetic		Borns		Accident		No reason		Unidentified	
	People	%	People	%	People	%	People	%	People	%	People	%
Visual	14,173	71.41	1,541	7.70	1,019	5.10	42,002	91.62	4,981	23.80	155,342	47.11
Hearing	207	0.14	36	0.02	34	0.02	22	0.04	1,987	9.39	1,701	0.58
Movement	22,817	10.99	948	4.54	17	0.01	1,039	4.70	18,812	8.89	39,213	11.90
Mental and behavior	14,805	7.09	407	0.19	48	0.02	711	3.44	11,515	55.17	97,769	29.29
Intellectual	8,909	4.15	274	0.13	8	0.00	234	0.11	20,720	9.01	12,429	3.70
Learning	3,440	1.67	1,283	6.07	223	0.10	239	0.11	20,230	8.81	38,369	11.69
Autistic	77	0.04	25	0.01	11	0.00	0	0.00	1,113	0.53	1,489	0.45
Multiple	8,776	4.25	1,019	0.49	96	0.00	1,947	0.11	11,341	5.02	12,029	3.59
Other	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	2,590	0.78
Total	265,800	100.00	5,697	2.14	482	0.18	49,225	18.52	224,000	84.28	499,248	187.86

In terms of the marital status of disabled Thai women, the data found that 146,245 are single, 184,395 are married, 35,646 are divorced, 6,697 are separated, 88,120 are widows, 11,162 are living together but not marry, 3,520 are others, and 483,348 are unknown. That is to say, most disabled women are married (19.23%) and single (15.25%). However, the majority chose to keep their marital status private.

In terms of education, the data for the year 2020 found that 62.65% received primary school education, 5.76% received a high school education, and 23.81% are unknown. In the year 2019, the study also found that 25,432 of them are qualified to receive an education but chose not to. 3,025 received less than early primary school education. 59,191 received secondary school education. 52,191 received a high school education. 7,863 received higher education. 9,866 received a vocational certificate. 222 received a diploma. 1,413 received some bachelor's degree or equivalent. 1,317 received more than a bachelor's degree. 233,113 did not receive an education. That is to say, most disabled women received primary education (61.65%) and secondary education (5.44%),

In terms of career, the data for the year 2020 and 2021 found that most of the disabled women are unemployed (8.51%) and are agriculturists (4.57%). However, most chose to remain their career private 80.97%. In the year 2019, the study found that 117,472 disabled women chose not to identify their jobs or is unemployed. 7,829 are a student or a business owner, 2 are office workers, 4 are state enterprises, 23,066 are freelance, 822 are a bureaucrat, 3,822 are a worker, 44,374 are an agriculturist, and 6,145 are others. Based on the previous data, it is found that 24% of disabled women did not receive an education, and 12% of disabled women are unemployed or choose not to identify their careers. If education is encouraged this could result in more jobs and higher quality of life for them.

The year 2020 data shows that, as for religion, disabled Thai women have different religions, including Shintoism,

Buddhism, Christianity, Hindu, and Brahminism. Most of them are Buddhist (54.09 %) and Islamic (2.66%). However, 42.84% chose not to identify their religion.

In terms of having access to utilities, 91.52 % don't have a telephone number and only 8.48 % have a telephone number. This data is similar to data from 2019.

In term of having a caretaker, using the 2019 data, majority of them have caretakers 72.04 % and 27.96% does not have one. In terms of population distribution across Thailand, based on the 2019 data, disabled women who are 0-5, 6-14, 15-21, and 22-59 years old live in Northeastern Thailand (30.70%, 31.98%, 33.92%, 37.96% consecutively). And those who are 60 years old and above mostly live in the Northeastern part of Thailand as well (44.34%).

The 2020 data shows that most disabled women live in Northeastern at 41.05%, North at 22.25%, Central at 20.15%, Southern at 11.76%, Bangkok at 4.48%, and Unidentified at 0.31%.

For the same topic, but now using the data from 2015 to 2019, it's found that the majority of disabled women at any age live in the Northeastern, then Central, Eastern, and Northern. The majority of them have a caretaker (70.98%) while some don't have any (29.02%).

In term of receiving welfare and public service from the government, the interesting findings from the survey are:

Disabled women have received public services from the government such as walking paths, bathrooms, and news. Next on the list are reduction of transportation costs such as train and airplane. However, things that they still lack of is being able to understand some medium and news because not all media have a sign language translator.

For the disabled women who have not received any public services from the government, they say what they want the most from the government is support for careers and income. This is to help them take care of themselves and live on a daily basis.

Based on the statistic, most disabled women are satisfied with the public services they received from the government and giving the highest rating (average score = 3.57). Considering the answers, here are the seven factors: 1. Human rights and equality (4.17 rating) 2. Well-being (3.80 rating) 3. Socializing (4.17 rating) 4. Facilities (3.46 rating) 5. Career, Employment, and Salary (3.45 rating) 6. Education (3.32 rating) 7. Sport and recreation (3.26).

Using the rating and comment from disabled women regarding how satisfied they are with the government's response to their conditions (human rights and equality), the overall score is high at a 4.17 rating. The first thing that disabled women are satisfied with is the Disabilities Identity Card (4.44 rating), disability allowance (4.36 rating), and the

knowledge and understanding of their rights and laws (4.01). The factor that has the lowest rating is not having enough knowledge to file the lawsuit when discriminated against (3.88).

Using the data and the satisfaction score regarding the public services from the government, the well-being came on top at a 3.80 rating. Next, receiving services and treatment from the hospital (4.02), and receiving understanding and knowledge about health, mental health, emotions, society, and intelligence can lead to living a normal life (3.73). The factor that has the lowest rating is having an annual body check-up (3.64 rating).

Using the comments regarding their satisfaction with public services from the government and education, the overall score is on average at a 3.32 rating. When considering other factors, three factors are considered on average and two factors are considered high rating. The two highest rating factors are receiving books for free (3.35 rating) and receiving a standard education and the IEP program (3.34 rating). The factor that has the lowest rating is supports from the education institution (3.26 rating).

Using the comment of how satisfied they are with services from the government with career, employment, and salary, the overall rating is average at 3.45. When considering other factors, two factors are considered high rating, and four factors are considered on average rating. The three highest rating factors are being employed (3.51), being trained (3.48), and being employ through an agency specifically for people with disabilities (3.25).

Using the data regarding their satisfaction with the government on socializing and living in the community, the overall score is high at a 3.55 rating. When considering other factors, three factors are considered at a high rating, and six factors are considered on average. The three highest rating factors are living with family and having a caretaker (4.05), going to social gatherings like religious events or cultural events (3.81), and living a life full of purpose (3.75). The factor that has the lowest rating is adjusting to their residency (3.18 rating).

From the data on how satisfied they are with public services from the government regarding sports and recreation, the overall score is on average at 3.46. When considering other factors, one factor is considered on average. And that is being able to join activities in the community such as sport and recreation (3.26 rating).

Based on the comment on how satisfied they are with public services from the government such as facilities, the overall score is on average at 3.46. When considering other factors, one factor is considered high and two factors are considered on average. The two highest rating factors are accessing the

facilities for people with special needs, such as a ramp and bathroom for people with disabilities (3.66 rating), and a discount on public services (3.48 rating). The factor that has the lowest rating is accessing news and information via sign language, Braille, and audio (3.25 rating).

To conclude, 33.2% of disabled women gave a score of on-average, 25.5% reported highly satisfied, and 20.1% reported extremely satisfy with the privilege and benefits they receive from the government.

The analysis about the quality of life of disabled Thai women after the COVID-19 situation is as below

Table 1.4 The number and percentage of disabled Thai women who are affected by the COVID-19

Effect from the COVID-19	Number	Percentage
No affect	380	16.5
Affected	1,920	83.5
Total	2,300	100.0

From the table 1.4, it finds that most of the disabled women are affected by the COVID-19 situation, 1,920 women (83.5%) while about 380 women (16.5%) are not affected.

Table 1.5 shows the number and the percentage of disabled women who are affected from the COVID-19 situation based on different factors

Effect from the COVID-19 situation based on different factors	Percentage
Health, Hygiene, Public Health, Risk of Infection, and Worrying	63.4
Work, Career, and Income	59.6
Social and Family and Worrying about the spread of disease within the family	54.1
Stability and long-term effect	48.2

From table 1.5, it is found that the the highest factors effect is Health, Hygiene, Public Health, Risk of Infection, and Worrying at 63.4%, next Work, Career, and Income at 59.6%, Social and Family and Worrying about the spread of disease within the family at 54.1%, **and lastly** Stability and long-term effect at **48.2%**.

Table 1.6 shows the number and percentage of disabled women who are affected by the COVID-19 situation and received help

Received help after being affected by COVID-19	Number	Percentage
Did not receive help	331	14.4
Received help	1,969	85.6
Total	2,300	100.0

From the table 1.6, it is found that the majority of disabled women received help from the COVID-19 situation, 1,969 women (85.6%) and 331 women (14.4%) didn't receive help.

Table 1.7 shows the percentage of disabled women who received help from the effect of COVID-19 situation, based on the type of help

Type of help	Percentage
Have access to information and public news from the Department for Empowerment of Persons with Disabilities about the plan to manage the COVID-19 situation.	64.0
Received disability relief fund, pause on loan, and emergency loans	57.4
Access to additional channels to purchase consumer goods through online platforms which fasten the time arrival	25.4
Received masks and hand sanitizer	41.8

From the table 1.7, it finds the highest type of help is to have access to information and public news from the Department for Empowerment of Persons with Disabilities about the plan to manage the COVID-19 situation at 64.0%, next Received disability relief fund, pause on loan, and emergency loans at 57.4 %, Received masks and hand sanitizer at 41.8%, and lastly Access to additional channels to purchase consumer goods through online platforms which fasten the time arrival at 25.4%.

Part 2: Analyzing the prediction of disabled women population

Using the data from the Department of Empowerment of Persons with Disabilities years 2015-2020 to calculate in the population analyses program, it's predicted that from 2021 – 2040 (or the next 20 years), the type of disabilities will be different in each group. The type of disabilities is classified into nine types which are visual, hearing, movement, mental and behavior, intellectual, learning, autistic, multiple, and undefinable, as well as divided into five age group are preschooler (0-5 years old), grade-schooler (6-14 years old), adolescence (15-21 years old), adult (22-59 years old), and elder (60 years old and above). With the current data from registered people with disabilities, the prediction is underestimated as there are still numbers of people who are not registered and avoid registering as people with disability due to parents' belief. However, comparing the numbers of people who register and the number of disabled women, there

is not that big of a difference (less than 1%) for both to define or for practical.

Using the data from 2015-2019, it shows that the number of disabled women tends to gradually increase. In 2015, the number of disabled women is 604,459 people. In 2016, the number had increased to 959,026 people, as the number of Thai elder population increases. However, there seems to be a decrease in disabled women population, from 18% per year to 9% per year. When considering the age range, it's found that the number of disabled women tends to increase as the age gap increase. Meanwhile, the numbers of disabled women tend to increase in every single age gap as well. As can be seen, the age gap is important to predict and study the number of disabled women in the future. It is important to protect women to not be disabled as they aged.

Table 2.1 The numbers of disabled women from 2015-2019

Age	2015	2016	2017	2018	2019
0-5	834	1,767	2,956	4,402	5,808
6-14	16,492	19,143	21,373	23,435	25,201
15-21	21,943	23,491	24,629	25,635	26,354
22-59	231,187	253,625	271,400	290,729	306,964
60 and above	334,003	407,826	468,748	537,797	594,699
Total	604,459	703,852	789,086	881,998	959,026
Percentage	16.77	11.79	11.77	8.73	

The overall estimation of the Thai population has a preliminary agreement regarding the numbers of populations in which the death leads to a decrease in the population and the birth result in an increase in the population. However, for disabled women, empirical data shows that the number of disabled women didn't decrease from aging to death. However, the numbers of aging disabled women are in fact increasing. With the two observations, 1) parents avoid registering disabled women with the young women group, and 2) some of the disabilities are not from birth, it comes later in life through illness or other factors. For example, disabilities that have to do with movement, mental illness, or behavioral. Moreover, the number of disabled women tends to "Decreasing Increase" and the structure of aging disabled women has an impact on the number of disabled women in the future. In other words, the change in the number of disabled women in the future is a result of the change in the structure of the aging population. Therefore, if the numbers of Thai populations tend to increase in the future, rationally the number of the disabled elder will increase, and the number of disabled women will increase in the future as well.

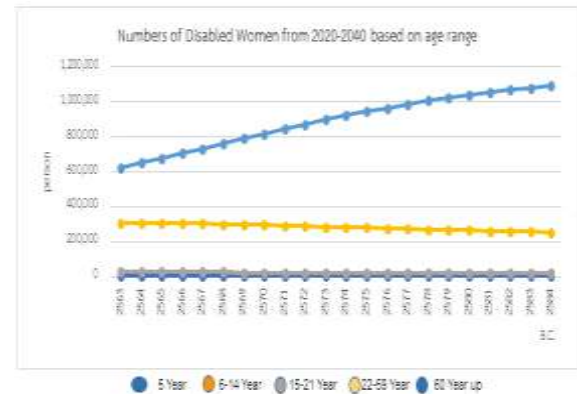


Fig.1 shows numbers of disabled women from 2020-2040

Figure 1 shows the number of disabled women from 2020 – 2040. It shows that the numbers have increased from 981,878 in the year 2020 to 1,365,196 in the next 20 years, or 1.95 % per year. The number of disabled women who are older than 60 will also increase by 3.62 % per year. As we can see, the percentage increase for women of this age is higher than the overall disabled women because of the population structure in Thailand which is drastically increasing in the elderly population, and the ratio of disabled women age 60+ is higher in comparison. In the meantime, the change in population structure in Thailand results in a decrease in disabled women in young and working age.

When categorizing the type of disabilities, we found that the number of disabled women increases across different types by approximately 1.78 % – 3.01 % per year. Intellectual disability, multiple disabilities, and vision impairment are the leading types in increasing numbers compared to other types.

Table 2.2 Numbers of disabled women based on age range

Age range	0-5	6-14	15-21	22-59	60 up	Total
2558	834	16,492	21,943	231,187	334,003	604,459
2559	1,767	19,143	23,491	253,625	407,826	703,852
2560	2,956	21,373	24,629	271,400	468,748	789,086
2561	4,402	23,435	25,635	290,729	537,797	881,998
2562	5,808	25,201	26,354	306,964	594,699	959,026
2563	5,368	25,056	26,410	308,445	625,116	990,389
2564	5,297	24,892	25,935	307,267	650,713	1,014,015
2565	5,223	24,566	25,449	305,785	677,119	1,038,142
2566	5,131	24,332	24,966	304,008	704,064	1,062,338
2567	5,073	24,184	24,461	301,973	731,637	1,087,311
2568	4,992	24,025	23,933	299,691	759,570	1,112,214
2569	4,922	23,725	23,682	296,932	787,862	1,137,142
2570	4,843	23,428	23,462	293,943	816,154	1,161,830
2571	4,768	23,137	23,280	290,800	844,266	1,186,250
2572	4,689	22,831	23,133	287,529	871,300	1,209,482
2573	4,610	22,525	23,043	284,234	896,898	1,231,310
2574	4,531	22,207	22,789	281,337	920,878	1,251,742
2575	4,449	21,889	22,539	278,512	943,422	1,270,812
2576	4,370	21,563	22,298	275,740	964,349	1,288,319
2577	4,290	21,232	22,047	272,966	984,198	1,304,732
2578	4,210	20,900	21,805	270,126	1,003,150	1,320,191
2579	4,130	20,561	21,525	267,278	1,021,113	1,334,606
2580	4,052	20,216	21,232	264,402	1,037,998	1,347,900
2581	3,973	19,876	20,951	261,570	1,053,446	1,359,816
2582	3,896	19,529	20,660	258,822	1,068,919	1,369,823
2583	3,819	19,181	20,366	256,226	1,077,966	1,377,537
2584	3,743	18,840	20,076	253,683	1,089,746	1,384,088

Table 2.3 Numbers of disabled women based on types of disabilities

	Visual	Hearing	Movement	Mental and Behavior	Intellectual	Learning	Autistic	Multiple	Unidentified	Total
2198	71,818	118,856	276,422	38,373	32,181	1,888	1,372	42,224	2,837	604,618
2259	82,890	139,297	331,338	45,352	34,362	2,283	1,792	45,918	3,044	705,852
2300	89,394	155,719	379,731	52,421	37,888	2,934	2,023	49,987	3,393	759,038
2361	96,758	173,284	435,938	71,083	59,983	3,633	2,588	72,179	4,178	851,997
2422	101,899	187,458	484,185	95,170	82,287	4,227	2,908	94,880	4,878	919,028
2483	100,881	184,830	504,942	121,064	102,817	5,387	3,787	115,307	5,990	990,389
2544	113,930	202,475	530,291	151,881	131,748	6,348	4,375	139,250	7,333	1,014,838
2605	119,427	208,881	514,097	182,233	155,778	7,632	5,351	159,757	8,585	1,089,148
2666	122,978	213,745	538,339	218,841	185,387	9,015	6,228	180,282	10,033	1,165,388
2727	126,592	219,547	542,527	253,881	215,388	1,088	7,594	200,809	11,885	1,207,312
2788	130,239	225,771	558,988	294,332	244,925	1,283	8,882	211,333	13,734	1,272,234
2849	133,908	232,135	571,448	335,841	274,675	1,487	10,220	222,838	15,581	1,337,248
2910	137,557	237,819	585,820	377,688	304,389	1,684	11,555	234,332	17,427	1,393,588
2971	141,173	242,784	600,049	420,273	333,118	1,881	12,888	245,847	19,275	1,458,231
3032	144,821	248,248	614,330	463,224	362,816	2,078	14,180	257,331	21,123	1,523,802
3093	147,892	253,412	628,613	506,272	392,514	2,275	15,473	268,820	22,971	1,589,336
3154	150,915	258,259	642,822	549,320	421,217	2,472	16,766	280,313	24,819	1,654,831
3215	153,920	262,793	656,981	592,368	450,925	2,669	18,059	291,806	26,667	1,720,322
3276	156,908	267,327	671,140	635,416	480,633	2,866	19,352	303,299	28,515	1,785,813
3337	159,881	271,861	685,299	679,464	510,341	3,063	20,645	314,792	30,363	1,851,304
3398	162,839	276,395	700,458	723,512	540,049	3,260	21,938	326,285	32,211	1,916,795
3459	165,782	280,929	715,617	767,560	569,757	3,457	23,231	337,778	34,059	1,982,286
3520	168,711	285,463	730,776	811,608	599,465	3,654	24,524	349,271	35,907	2,047,777
3581	171,630	289,997	745,935	855,656	629,173	3,851	25,817	360,764	37,755	2,113,268
3642	174,549	294,531	761,094	900,704	658,881	4,048	27,110	372,257	39,603	2,178,759
3703	177,468	299,065	776,253	945,752	688,589	4,245	28,403	383,750	41,451	2,244,250
3764	180,387	303,599	791,412	990,800	718,297	4,442	29,696	395,243	43,299	2,309,741

From the data estimating disabled Thai women, we can see that Twenty years from now, the number of disabled women continues to increase, especially in the elderly. Twenty years from now is an important period and challenging to combat to improve the quality of life of disabled Thai women. Not only preparing for the change in population structure but also issues, found from the in-depth interview, regarding the role of disabled women in making a movement about their human rights. Part 3 is as below:

Part 3: Recommendations on how to improve quality of life for disabled Thai women

Using the data from the survey and the estimation of disabled Thai women, along with questionnaires from in-depth interviews, to analyze and explain the situation, suggesting ways to improve the quality of life of disabled Thai women. The main findings are as below:

The issues with human rights and equality are one of the most important topics. Starting from the basic human right to acceptance and respect in humanity, disabled women need to feel their sense of belonging both socially and lawfully. This leads to policy and rules planning that is related to them which can then result in the promotion and improvement of disabled women's life appropriately and respectfully. This includes healthy life, education, income, care benefits, opportunity to work, role in the society, living freely, the ability to participate in sports and social events such as religious and

cultural, and the right to practice life skills according to their goals and living situation. However, issues with accessing human rights and welfare are still happening, as listed below:

1) Haven't registered to receive disability benefits. This issue occurs because parents didn't report to the government about their child's conditions since when their children were younger. Another reason is that the disability that comes later in life, such as mental health. With registering for mental health, they will receive more benefits and treatment from the hospital. However, the patients can choose not to receive the recommendation or choose not to register by themselves.

2) Have no access to media and information. This issue occurs as the information is too old and hasn't been updated to match the current situation. Some media are not appropriate for some types of disabilities as well, such as blind or mentally ill people.

3) Violating disabled women's rights. Some disabled women do not receive appropriate protection, unaware, and afraid to report. These issues come from the system like policy, law, and operation.

However, the common issue is that when violence occurs, the government chooses to mediate. Nevertheless, violence is a criminal case that can't be mediated. When the government chooses to mediate, it is considered duty omission. Disabled women have the right to be taken care of and received treatment and appropriate investigation until they are able to enter society normally. The issues raise the question to the relevant staff if "What they are doing is considered appropriate?" One of the survey participants shared the idea that the staffs, who work in the disability department, mindset is that they (the staffs) feel as if they are fixing this issue based on human rights (Right Based). They think that they are doing the job as social charities. The department should use the social model to articulate appropriate procedures for people with disabilities. Disabled women are also human beings. Therefore, human rights should also apply to them. Society should take responsibility for disabled people by supporting and participating in social events to solve the 3 main obstacles that disabled women are facing. Those obstacles are (1) Physically Barrier such as building, man-made environment, and basic utilities (2) Systematic Barrier such as administrative system. Society lacks generosity in law and political institutions. (3) Attitude Barrier such as negative attitude towards disabled women, prejudice, and stereotype. By taking care of these issues, the procedures and structures to protect disabled women with their needs can be changed. From data found, disabled women want to live life like any other women: education, employment, family, being in the society, getting access to services, traveling, medical treatment, and other human rights. Lastly, but most

importantly, to be able to make decisions about her life on her own.

As the Thai population structure will shift to an increase in aging women, enhancing human rights and welfare for disabled women for the next 20 years is an important issue that required planning. Therefore, implementing the support plan for disabled women is an important topic that can't be done by just one department alone. Disabled women's issues and other disabled people's issues are one of many factors that are related to promoting the quality of life of the population in different aspects and directions. Therefore, placing this issue in every ministry is a must, and the Ministry of Social Development and Human Security should be the Focal Point to raise this issue. It will require a guideline to work sustainably, practically, and wholly under the vision that disabled women are also human.

IV. RECOMMENDATIONS

From the research above, these are 7 challenges disabled women are facing and should be considered as part of the policy for improvement:

Issues that should be considered for improvement policy:

1) **Definition of disabled women has to be separated on its own.** In the past, the topic of disabled women is often included with other disabled people, which leads to ignorant and inappropriate responses to services and welfares specifically for disabled women.

2) **Role of disabled women.** The issues about disabled women should be a universal concern, not just the Ministry of Social Development and Human Security. The disabled women population wants to receive supports and improvement from different departments and having the Ministry of Social Development and Human Security as the Focal Point. They are also looking to see a Convention about the rights of people with disabilities: CRPD and management on discrimination against disabled women as well as children and immigrants issue.

3) **Disable women's rights.** Disabled women should have a space to express their opinions as well as being able to get involved in different movements in society, including holding a position in important organizations so they can be the voice to raise awareness, make decisions, and support other disabled women. There should be more solutions to support disabled women in the following areas:

Consultation on how to protect themselves from assaults, especially for those who are not comfortable filing a complaint. However, if the assault has already happened, consultation on how to take care of themselves aftermath should be provided. With this issue, having protectors and caretakers raising awareness would be helpful as well.

Another important aspect to think about is staff training. This is to make sure that they truly understand and able to communicate with disabled women effectively, such as sign language training.

Remedy Restoration or rehabilitation

Forwarding the issues to the relevant person to take care of resolve the issue effectively

4) **Career and Salary.** Fixing the regulation at the Department for Empowerment of Persons with Disabilities on the usage of funding, loan money, and take funding from employers to spread it across disable people is something to look at. When disabled women have the money, they use it as a power to make their own decisions on how they spend money on themselves and family members. Disabled women should get trained in life skills and professions that can help them stand up by themselves.

5) **Technology.** Some disabled women still don't have access to technology because they don't have the resources or WiFi. Government should work on developing technology that can facilitate disabled women to live more comfortably. The government should also invest in the system and tools that allow disabled women to access essential topics like communicating with the government agency, searching for work, and receiving news and medical advice.

6) **Making media publicity appropriate for disabled women.** The media should have visualization and captions that are easy for blind people to understand, as well as educate them on how to protect themselves from any infringement, including sexual harassment. In terms of people with mental illnesses, the media publicity needs to be adjusted accordingly. That said, distribute news using a spreading method or having volunteers knocking on the doors. This is because some people with mental illnesses might want to keep this part of their lives private.

7) **Preparing disable people, especially disabled women who are unmarried or childless, to entering the aging society.** Disabled women need to prepare themselves for the living situation, health, and insurance. The principle used is Active Ageing by the World Health Organization that focuses on preparing them in 3 areas: healthy physically and mentally, stable lifestyle, and involvement in the community.

The challenging part of being disabled women in the next 20 years is how they will live in a good condition, considering all the changes in the economy, technology, and pandemic. Even though the population and the life span for these women tend to increase, however, if their quality of life remains inferior, lack of education, unstable income, and living alone, how will the government support service and welfares that can cover the increasing numbers of disabled women in the upcoming years? On the other hand, if we can protect disability from

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happening with elder women through the aged proactive idea, that allows Thai women to live stably in life, income, and health, it will be a key fundamental that leads to values and powers that will encourage them to be involved in the community. It is all depending on how much we realize the importance of this topic and how do we prepare ourselves for the future to comes.

V. ACKNOWLEDGEMENT

This study is successful because of the participation from all the disabled women. The gratitude is extended towards the Department for Empowerment of Persons with Disabilities that allows the researcher to study the important issues which can then be used to improve the quality of life for disabled women in the future. Lastly, I would like to thank the Dean of Population Studies of Chulalongkorn University, and Dean of Collage of College of Educational Innovation Research of KMITL, staffs, and faculty who always support me

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The Application of Buddhist Democratic Approaches in Socio- Economic Policy Implementation

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Abstract— The purpose of this article was to study and explain about the application of Buddhist democratic approaches in socio-economic policy implementation . The authors studied and collected the data from Buddhist scriptures, texts, and related document about Buddhist democratic approaches in socio-economic policy implementation. Buddhist principles are relevant with the recognition of the need for consensus that base on major decisions affecting the lives of individual, group, and community. Thus Vinaya or Buddhist rules govern the behavior and life of the Buddhist monastic community related with democratic traditions. It is true that no system of government is perfect, democracy is the closest to our essential human nature and allows the greatest opportunity to cultivate a sense of universal responsibility. Social policy implementation is the process that the administrators who have conceptual, technical and human relation characteristics, and exercising the power to consider the structure, duty and operation, including different resources such as human resource, money, material and equipment that have existed or expecting to have existed. Policy implementation affects the lives of the people in the whole country in order to solve the problem, to promote the well-being of citizens, and to fulfill the basic needs of people. Buddhism does not only have social implications, it also has political implications that Buddha gives freedom of thought and freedom of self-development to all under the same concept and goal with every personnel's potentiality and with respect to mutual obedience of equality system. Buddhist principles have responded to this complex situation in many ways and cannot be inseparable from the world

Index Terms— Buddhism, Democratic Approaches, Implementation, Socio-economic policy

I. INTRODUCTION

Buddhism has been characterized by some people as an ascetic religion. In reality, asceticism was experimented with by the Buddha and later rejected by him before he attained enlightenment. The ethics of Buddhism is widely discussed, its treatment is frequently misconceived or lopsided, even when offered by Buddhist scholars. In order to gain a more accurate picture of Buddhist ethics, it would be helpful to avoid certain mistakes from the start. Buddhism does emphasize the cultivation of certain mental states, the Buddha taught that human consists of both mind and body, and stated that a necessary degree of material and social well-being is a prerequisite for any spiritual progress. It is common, furthermore, for scholars of Buddhism to confine themselves to the dhamma, or the doctrinal portions of Buddhism whereas Buddhism in its entirety consists of the Dhamma and the Vinaya. In other words, the Dhamma or the doctrine, and Vinaya, or the discipline, make the whole of Buddhist ethics.

The Dhamma deals with ideals and principles whereas the Vinaya deals with rules and circumstances in which these ideals and principles are practiced and realized. The Vinaya here denotes not only the monks or nuns discipline, but also the spirit of these rules and regulations. Without taking into consideration both of these components, the Dhamma and the Vinaya, no adequate idea of Buddhist ethics can be reached[1]. Buddhist moral precepts provide a wholesome foundation for personal and social growth. They are practical principles for a good life and the cultivation of virtues. If we understand the objectives of Sila and realize its benefits, we will see moral precepts as an integral part of life rather than as a burden that we are compelled to shoulder. Buddhist moral precepts are not commandments imposed by force; they are a course of training willingly undertaken in order to achieve a desired objective. We do not practice to please a supreme being, but for our own good and the good of society. As individuals, we need to train in morality to lead a good and noble life. On the social level, we need to help maintain peace and harmony in society and facilitate the progress of the common good. The practice of moral precepts is essential in

this regard. The five precepts training are based on the axiomatic assumption that human beings have the potential for development. In order that this development may be realized, a concrete standard is needed by which people may train themselves the five precepts are meant to fulfill this need[2].

In Buddhist perspective, all phenomena have three characteristic marks; impermanence, selflessness, and satisfactoriness. The Buddha stated that happiness, as we ordinarily conceive of it, is an illusion. True happiness cannot be found in possessing things or satisfying our cravings. Rather, it involves an abiding sense of fullness and inner peace, an inner serenity that does not depend upon our life circumstances. The satisfaction of a desire is not a genuine benefit, it does not enhance the quality of our lives. As a philosophy of life, perhaps the most important insight of Buddhism is that genuine happiness is not contingent upon our life circumstances. We can be truly and deeply happy simply by connecting with the present moment without grasping or aversion[3]. In Sigālovāda sutta, it is a classic text on lay ethics and social responsibilities, an exposition of the whole code of domestic and social duties of a layman according to the Buddhist point of view. According to this sutta, a social role of Buddhism is a practical way of solving the problems in the societies and to identify the way of living in oneself Even though such as the six directions taught by the Buddha to the Sigālaka[4]. Buddhist principles are relevant with the recognition of the need for consensus that base major decisions affecting the lives of individual, group, and community. Thus, Vinaya or Buddhist rules govern the behavior and life of the Buddhist monastic community related with democratic traditions. It is true that no system of government is perfect, democracy is the closest to our essential human nature and allows us the greatest opportunity to cultivate a sense of universal responsibility. Buddhism contributed for human development and social welfare, especially Buddhist philosophy has alleviated not only spiritual but also physical well-beings for human societies. Buddhism is carried on in the most ideal way, with no trace of indoctrination and coercion. Buddhism deals with the spiritual realm. It concerns wisdom about how best to live one's life in light of the realities of human existence. In Buddhism, It is apparent that material well-being is one important factor contributing to the development of a economic community. The primary objective of economic activities in Buddhism is to alleviate poverty. The proper way to deal with crime is to first improve the economic condition of the people. When people are thus provided with opportunities to earn an income, they will be content, has no

anxiety or fear, and will not cause harm to the society. These conditions will lead to a peaceful and prosperous society.

II. OBJECTIVE OF STUDY

The purposes of this article were to study and explain about the application of Buddhist democratic approach in socio-economic policy implementation . The authors studied and collected the data from Buddhist scriptures, texts, and related document about Buddhist democratic approaches in socio-economic policy implementation.

III. BUDDHIST DEMOCRATIC DISCIPLINES(VINAYA) AND SOCIO-ECONOMIC POLICY

Buddha did not formulate the code of discipline in a single exercise. However, He instituted certain rules as and when the need arose. Vinaya Pitaka and its commentary contain many significant stories about how and why certain rules were laid down by the Buddha. According to the Buddha the best form of Vinaya was to discipline the mind, words and action. The early disciples of the Buddha were highly developed spiritually and they had little need for a set of rules to be imposed upon them. However, as the monastic order (the Sangha) grew in numbers, it attracted many others, some of whom were not so highly developed spiritually. The Buddha prescribed all the necessary guidance to maintain the holy order in every aspect of life. When the Buddha passed away, these rules were collated so that the order could be organized around them. The code of conduct prescribed by the Buddha can be divided into two broad areas. These are Universal Moral Codes, Lokavajja, most of which are applicable to all members of the order and lay people alike for leading a religious life. Certain other disciplinary codes or rules which can be instituted to meet the existing cultural and social constraints of the country at any one time are called Pannatti Vajja. In the first category are the Universal Laws which restricted all immoral and harmful evil deeds. The second category of rules applied almost directly to the monks and nuns in the observance of manners, traditions, duties, customs and etiquette. Breaking of moral codes pertaining to the Lokavajja create bad reputation as well as bad kamma, whereas violation of disciplinary codes based on social conditions do not necessarily create bad kamma. However, they are subject to criticism as violation in any form pollute the purity and dignity of the holy Order [5]. The Dhamma-Vinaya is the Buddha's teaching of the religion he has found. The Dhamma is the truth which he has discovered and pointed out as the noble advice for all who want to gain the liberation from the suffering. The Vinaya is the discipline that the Buddha formulated as the rules, ideal, and standards

of behaviors for those of his followers who went forth from home life and took up the quest for the liberation in the greater earnestness[6].

Human gathering together in form of what is called society usually contains related and interacted components. Such components are always described in 3 folds; one is human behavior of such society, one is human quality of life in all aspects – political, economic and social, one is social organization and institutions. With three related components, it is necessary to set up possible social policy, order and management. Government is one of the issues to make understanding first before go on managing the other social components since government is the power for social administration and management. The Buddhism society during the Buddha's times was called Sangha means company. This is considered as the true society of equality because the Sangha consisted of members from all castes who will be treated equally. The regulation or order utilized by the Sangha was seniority system regarding the age of when begins joining the Sangha society. So birth, family background, economic states, education levels are not counted nor considered. Instead, each one's knowledge, behavior as Arahantship is praised. This can be cited from what the Buddha praised his disciples being excellent in various kinds of knowledge. The Sangha society was then peaceful, respectful, and mutual well accepted[7].

IV. THE APPLICATION OF BUDDHIST DEMOCRATIC APPROACHES IN SOCIO-ECONOMIC POLICY IMPLEMENTATION

The policy implementation is the process that an administrators who have conceptual, technical and human relation characteristics, and exercising the power to consider the structure, duty and operation, including different resources such as human resource, money, material and equipment that have existed or expecting to have existed. The administration of the organizations must proceed to the destination as needed by depending upon other persons that consist of making plans, managing organizations, personnel works, providing convenience and supervision or called POSDCORB. The policy implementation of the government follows the principle of good governance. Buddhism is a religion of wisdom and practice. The basic Buddhism mentioned the fact by natural law that the people use in parallel of wisdom in practice consisted of morality and ethics focus on the truth of the world literacy and currently lives. Especially, it is an important part of the stimulus the subordinates to live together happily, developing a sustainable and successful organization. The purpose of socio-economic policy is redistribution of income in order to

move toward equity. It is this objective that has been subject long term objectives such as welfare and equity achieved. Socio-economy policy has connected the study of the social relations necessary for human well-being and the systems by which well-being may be promoted. Policy Implementation is a process in public policy process which is important step requiring knowledge both science and arts of policy management. Policy Implementation needs to understand the details of interaction, connection, reliance including independence of organization and persons involved in policy process. The policy implementation is divided into 2 main steps; (1) the macro implementation are (a) converting the policies into plans and projects, and (b) creating acceptance of policies of regional and local authorities (2) the micro implementation were (a) mobilization, (b) deliverer implementation and (c) institutionalization or continuation, outcomes. However, the model of policy implementation consists of 3 main theories; (a) Top-down Theories of Implementation, (b) Bottom-up Theories of Implementation and (c) Hybrid Theories of Implementation respectively[8]. In the Buddhist canons, Buddha had clearly mentioned the origin of state, political order and human kingship, particularly in the Agganna Sutta of Digha Nikaya. In this sutta, it says that in the very beginning human beings were altogether perfect as there were no thieves, no lying, no cheating, no corruption and so on. With such an idealized phenomenon, there was no need for the state to function as a regulatory agency. But later on, the human behavior started to become worsen, untruthful and violent, and the state declined into anarchy. As the people decline more and more from their state of purity, the origin of the kingship was established. This myth is similar to the illustration in the Mahabharata of Brahminic polity. However, when the Mahabharata of Brahmanism says that the ruler of the world was created by Brahma to govern this anarchical society[9]. The evidence that proofs much of his Dhamma policy can be justified in his well-known statement in the Say-Fong inscription which stated that the bodily pain of his people became a pain of the soul for him (King Jayaraman VII), more painful to him than to the actual individuals, for it is the suffering of the state which makes kings suffer, and not their own pain[10]. The impressive development during the reign of King Jayavarman VII were the construction of extensive road networks across the country accessible for military and trade purposes, the building of enormous irrigation systems supporting agricultural development and the establishment of numerous hospitals and rest houses necessary for increasing social welfare, etc., was consequently contributed to by 1) the righteous policies based on the Buddha's Dhamma, which were applied to the public administration and policy

implementation; 2) the competent public servants, namely the guru who were supportive both to the king and the Buddhist government; and 3) the Dhamma-oriented leadership, which characterize public administration and policy implementation model as more compassionate and responsible for the interest of his citizens [11].

Buddhist approaches has effected to sustainable socio-economic policy at all levels from individual, group and social structure. As we know that the resources are limit . Therefore, the government and policy makers should think for sustainable socio-economy policy based on the virtue of *generosity*, sublime states (Brahma Vihara), avoiding Agati (the four wrong courses of action) that the government and concerned policy makers should contribute generously to the well-being of the people for their basic needs. Additionally, the Four Noble Truths constitutes a framework of socio-economic policy and problem resolution, Dukkha as problem identification of human's need, Samudaya as causal investigation of the people's need. In this process, the participation of the people is really required. In this process of socio-economy policy making, the government or the policy makers should concentrates on the principles of virtues for fraternal living (Saraniyadhamma). Nirodha as possible or required solutions because the socio-economy policy has to be responded with the human's need, and it is from the real need of the people in the process of fact finding called Samudaya, and Magga as recommendations or methods for desired solutions of the human that is the process of policy implementation. The socio-economy policy affects the lives of people in the whole country. Socio-economy policy has been issued by the government to solve problems, to promote the well-being of people, and to fulfill the basic needs of people. It should concentrate on the responsible administration in serving the public interests, and the government should provide an effective delivery of public service and social welfare to the people.

V. CONCLUSION

Buddhist principles are relevant with the recognition of the need for consensus that base major decisions affecting the lives of individual, group, and community. Thus, Vinaya or Buddhist rules govern the behavior and life of the Buddhist monastic community related with democratic traditions. it is true that no system of government is perfect, democracy is the closest to our essential human nature and allows us the greatest opportunity to cultivate a sense of universal responsibility. For human beings, they search to live in a society in which they can express freely . Democratic approach is the closest to our essential human nature and allows us the greatest opportunity to cultivate a sense of

universal responsibility. Social policy implementation is the process that the administrators who have conceptual, technical and human relation characteristics, and exercising the power to consider the structure, duty and operation, including different resources such as human resource, money, material and equipment that have existed or expecting to have existed. Policy implementation affects the lives of the people in the whole country in order to solve the problem, to promote the well-being of citizens, and to fulfill the basic needs of people. Buddhism does not only have social implications, it also has political implications that Buddha gives freedom of thought and freedom of self-development to all under the same concept and goal with every personnel's potentiality and with respect to mutual obedience of equality system. Buddhist principles have responded to this complex situation in many ways and cannot be inseparable from the world.

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Trade Barrier Measures under the Obligations of the International Agreement of the European Union Affecting the Thai Fishing Crisis

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Abstract— This article is aimed to study Thailand's obligation to comply with European Union (EU)'s rules concerning the measures issued for the control of fishing activities. As the developing and underdeveloped countries are not ready to comply with such obligation which they are required to change for the use of high technological equipment for the fishing, the obligation therefore seems like trade barrier measures to these countries, including Thailand, which is one of the developing countries. This is because Thailand has been criticized that its fishing industry brings about the deterioration of marine and fish environment because the country has not complied with the requirements under the EU's Illegal Unreported and Unregulated (IUU) measures, leading to the issuance of "yellow card" to the Thai's fishing industry. In fact, there should be a grace period for Thailand before complying with the obligation as the Thai fishing industry lacks sufficient funds to procure modern equipments and boats. This article argues that the seizure of the licenses and the suspension of the fishing industry inevitably affect Thailand's economy, and are not in line with the WTO's principle which encourages members to apply the Non-Discrimination Principle among themselves. Furthermore, the exploitation of the sea should be free according to the Law of Seas under the United Nations Convention on Law of the Seas (UNCLOS).

Keywords— IUU Fishing, critical Thai Fishing, EU-regulations effected to Thai Fishing

I. INTRODUCTION

Thailand is in a good stronghold where there are capes surrounded by the sea of Indochina Peninsular. Thailand thus has its sovereignty over the coasts of Andaman Sea and Thai Gulf. That Thailand has its sovereignty over both coasts causes great benefit for its fishing which is national great benefit. Thailand was ranked a world leader of aquatic animal exports. In the past, the exports value of frozen seafood which were shrimp, squid, fish, and tuna was about three hundred billion baht. Fishing is hence the main economic earning of the country. The exploitation of natural resources in the stronghold and the fishing, which has been in the country for years, have brought about deterioration of marine environment and marine natural resources. Fishing has destroyed marine environment. Unregulated fishing increases a number of fishing vessels. Moreover, the application of modern technology to fishing destroys natural harmony and instantly causes Illegal, Unreported and Unregulated Fishing: IUU Fishing in Thai fisheries, where IUU Fishing is committed by Thai fishing vessels and foreign fishing vessels. The Fishing is also committed in offshore fisheries (Thawatchai Suvanpanich and Team, B.E. 2560).

In contrast, there has been the development of both fishing equipment and fishing methods which are friendly to nature and environment in European countries.

As a result, Food and Agriculture Organization discussed with its member states so as to launch the measure to prevent illegal fishing and to maintain sustainable fishing which has come into force since 1 January 2010 called Illegal Unreported and Unregulated Fishing (IUU Fishing). Thailand has put its effort to reform its control of fishing vessels committing illegal fishing. The Ministry of Agriculture and Cooperative has been in charge of being a focal point for both government agencies and private sectors. At that time, the urgent measure was to immediately launch an announcement to inform people about the laws of the European Union and punishment which shall be given according to individual offense. Thus, a number of Thai vessels which were not given a license or failed to comply with the rule were not permitted to sail in the sea. This affected Thai seafood export business. According to the exportation analysis of frozen seafood, it found that in 2017, value of global frozen seafood exports was at 110 billion dollars. Top 5 exporting countries were China, Norway, India, Vietnam, and the US. The proportion of them took 1/3 of the global export (Thailand took 16th). Top frozen seafood products are presented as follows (Chaiwat Sowcharoensuk, B.E.2562).

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1) Frozen fish (fish and sliced fish meat) possessed export value at 60.7 billion dollars or 60.6% of the value of global frozen seafood exports. Top exporters were European countries (possessed 47.3% of the value of global frozen fish exports). Most of the exports were intra-regional trade. Consequently, Europe has possessed the highest value of frozen fish imports calculated at 43.4%. As for the exporters, China possessed 10.8%, and the U.S. possessed 5.5% respectively. Thailand was in 29th of the world with global market share at 0.7%.

2) Frozen shrimp possessed value of global exports at about 20.3 billion dollars or 21.1% of the value of global frozen seafood exports. Top exporter countries in Asia (possessing 51.4% of values of global frozen shrimp exports) were India (20.0%), Vietnam (10.2%), Indonesia (6.2%), Thailand (4.5%), and China (4.4%).

3) Frozen squid possessed value of global exports at 9.0 billion dollars or 8.1% of the value of global frozen seafood exports. Top exporter countries were China (possessing 29.2% of the value of global frozen squid exports), Spain (9.0%), Morocco (9.0%), and India (8.4%). As for Thailand, the country possessed its market share at 3.9%.

According to the analysis of the Bank of Ayudhya, a financial institution, it revealed that factors affecting Thai's processed seafood exports are prescribed as below.

Frozen seafood: in 2013 – 2017, exports shrank by average 2.6% per year. This was caused by following factors. 1) Aquatic animals were decreased (as shown in picture 10 and 11). 2) Thailand lost GSP of seafood on 1 January 2558. Thus, import tax of the products from Thailand was higher. For example, tax on frozen shrimp imports increased from 4.2% to 12.0%, and tax on frozen splendid squid increased from 2.5% to 6.0%. 3) Many trading partners applied Non Tariff Barriers: NTBs. For instance, in 2014 the US placed Thailand in "Tier 3" as provided in US's Trafficking in Persons Report: TIP Report[7]. Although the US promoted Thailand to "Tier 2 Watch List" in 2016, Thailand was in lower level in comparison to other countries, such as, India, Indonesia, and Vietnam. Besides, in 2015, EU sentenced Thailand to "yellow-carded countries" according to the regulation of IUU Fishing [8] due to illegal unreported and unregulated fishing which affected the exports of Thai products' brand image. As a result, value of Thai frozen seafood exports decreased to lower level in comparison to the decreasing happening in word market, (Chaiwat Sowcharoensuk, B.E.2562).

International law and domestic law relating to fishing crisis in the Kingdom of Thailand

Such as Council Regulation(EC) No 1005/2008
Article 1 Subject matter and scope

1) This Regulation establishes a Community system to prevent, deter and eliminate illegal, unreported and unregulated (IUU) fishing.

2) For the purposes of paragraph 1, each Member State shall take appropriate measures, in accordance with Community law, to ensure the effectiveness of that system. It shall place sufficient means at the disposal of its competent authorities to enable them to perform their tasks as laid down in this Regulation.

3) The system laid down in paragraph 1 shall apply to all IUU fishing and associated activities carried out within the territory of Member States to which the Treaty applies, within Community waters, within maritime waters under the jurisdiction or sovereignty of third countries and on the high seas. IUU fishing within maritime waters of the overseas territories and countries referred to in Annex II of the Treaty shall be treated as taking place within maritime waters of third countries.

Article 6: Prior notice

1) Masters of third country fishing vessels or their representatives shall notify the competent authorities of the Member State whose designated port or landing facilities they wish to use at least three working days before the estimated time of arrival at the port, of the following information: (a) vessel identification; (b) name of the designated port of destination and the purposes of the call, landing, transshipment or access to services; (c) fishing authorization or, where appropriate, authorization to support fishing operations or to transship fishery products; (d) dates of the fishing trip;

(e) estimated date and time of arrival at port; (f) the quantities of each species retained on board or, where appropriate, a negative report; (g) the zone or zones where the catch was made or where transshipment took place, whether in Community waters, in zones under the jurisdiction or sovereignty of a third country or on the high seas;

(h) the quantities for each species to be landed or transshipped. Masters of third country fishing vessels or their representatives shall be exempted from notifying information contained in points (a), (c), (d), (g) and (h), where a catch certificate has been validated in accordance with Chapter III for the full catch to be landed or transshipped in the territory of the Community.

2) The notification set out in paragraph 1 shall be accompanied by a catch certificate validated in accordance with Chapter III if the third country fishing vessel carries on board fishery products. The provisions laid down in [X1 Article 13] on the recognition of catch documents or port State control forms which are part of catch documentation or

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port State control schemes adopted by regional fisheries management organizations shall apply mutatis mutandis.

3).The Commission, in accordance with the procedure referred to in Article 54(2), may exempt certain categories of third country fishing vessels from the obligation stipulated in paragraph 1 for a limited and renewable period, or make provision for another notification period taking into account, inter alia, the type of fishery product, the distance between the fishing grounds, landing places and ports where the vessels in question are registered or listed.

4).This Article shall apply without prejudice to special provisions set forth in fisheries agreements concluded between the Community and third countries.

Article 20¹:Flag State notifications and cooperation with third countries

1).The acceptance of catch certificates validated by a given flag State for the purposes of this Regulation shall be subject to the condition that the Commission has received a notification from the flag State concerned certifying that:

(a)it has in place national arrangements for the implementation, control and enforcement of laws, regulations and conservation and management measures which must be complied with by its fishing vessels;

(b)its public authorities are empowered to attest the veracity of the information contained in catch certificates and to carry out verifications of such certificates on request from the Member States. The notification shall also include the necessary information to identify those authorities.

WTO -GATT on "Principle of Non-Discrimination

WTO's member states shall not discriminate the imported goods from other parties. This principle on Non-Discrimination appears in Article 1, paragraph one of GATT 1994 which stipulates that "...any advantage, favors, privilege or immunity granted by any contracting party to any product originating in or destined for any other country shall be accorded immediately and unconditionally to the like product originating in or destined for the territories of all other contracting parties (Martin Dixon Robert C. Sarah W, 2011). This provision requires all member states to treat one another equally without any discrimination. Such as Most Favored Nations Treatment Principle (MFN)is an important legal principle of WTO which plays a crucial role to support the non-discrimination principle towards the goods imported from or exported to WTO member states at the border crossing point and international port. In so doing, a granting state is obliged to grant privileges to a beneficiary state on the "same category of matter" as it grants any privileges to a third state, etc.

Article XX thus offers general exceptions from international trade obligations for unilateral trade measures in pursuit of specified purposes, including "the conservation of exhaustible natural (Jaruprapa Rakpong B.E.2560)

As the EU considered that IUU measure should come into force in every country which exports marine products to the EU, European Commission has launched Council Regulation (EC) No. 1005/2008 of 29 September 2008 Establishing a Community System to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing on 29 September 2010. European Commission then inspected and forced every country that exported marine animals to the EU to implement National Plan of Action on Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing: NPOA-IUU and to urgently deal with their problems in order to meet conditions of IUU-Fishing so as to be permitted to export their products to the EU

In comparison to other countries located in ASEAN coast, the crisis in Thailand was similar to the situation in those countries. For example, in Japan, vessels and fishing equipment did not meet standard as prescribed by IUU. To deal with the fishing problems does not depend on the intention of each country to comply with the international agreements, but it depends on the readiness of entrepreneurs to invest in improving such crisis. Hence, the card decision of the EU issuing Thailand a yellow card was like a barrier to Thailand. This is not a tax measure, but it is an indirect measure which is a trade barrier to Thailand. Thus, the exemption as provided in Article 20(b) and (g) cannot be enforced in the member states of World Trade Organization, as the provision of Article 20 XX provides that arbitrariness is prohibited. Appellate Body of World Trade Organization states that the Article shall be carefully applied to all member states of World Trade Organization with single standard. The EU needed to inspect the application of IUU in other trading parties before issuing Thailand a yellow card. As there were trafficking in persons cases taking place in Thai fishing. International Labour Organization Convention No. 188 Work in Fishing Convention A.D. 2007 (B.E. 2550) which intends to ensure that fishers on board shall have quality of working lives should be applied. It provides minimum standard for condition of working on board including working environment, accommodation, meal, safety, health care, medical service, and social security. Thailand has already ratified the Convention.

As seen, there are 10 EU's member states, which are France, Estonia, and Lithuania etc., of 44 EU's member states has ratified the ILO Convention C188 (International Labour Organization). Other countries which have ratified the Convention are countries where fishing plays less important

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role. Besides, there has not been evidence identifying that the US has given its ratification to the Convention. Nevertheless, the EU and the US had been forcing Thailand to deal with forced labor and human trafficking². In addition, there has not been shown that the 36 coastal states in Asia-Pacific region, which major income is from fishing, have ratified the Convention. It should thus consider that whether there has been discrimination against Thailand or not. As known to all those fishing industry countries, working hours on board is subject to change depending on the weather. Consequently, working hours on board cannot be set as settled as working hours on land is set. To set the working hours on board requires awareness of healthcare of the crew which shall be single standard to be applied by every country.

Furthermore, Article 1 Council Regulation No. 1005/2008 states that all the EU member states shall launch appropriate measure conforming to EU laws so as to guarantee effectiveness of the system. It shall place sufficient means at the disposal of its competent authorities to enable them to perform their tasks as laid down in this Regulation. It is acceptable that the EU orders its member states to legislate domestic law, and it is acceptable that the EU urges its people to give cooperation. However, Thailand is not its member state, so legal enforcement in Thailand shall be different from legal enforcement in its member states, as Thailand is not under the same obligation as those countries. Legal enforcement shall concern economy, social, way of lives, fishing vessels, and fishing equipment of the fishers in developing countries. For example, there are divergent fishing vessels in Thailand. Though Thailand was issued a yellow card, it should not be required to launch domestic law like those member states. In contrast, what Thailand is required should be the changing of vessels' physical, fishing equipment, and fishing methods in order to sustainably preserve ocean resource and meet international standard. Therefore, to amend Thai law and to launch Emergency Degree on Fisheries, B.E. 2558 (2015) which was amended in B.E. 2560 was to comply with the obligations of the EU without concerning for marine local tradition and the United Nations Convention on the Law of the Sea which pays respect to rights of coastal states and provides that coastal states shall have sovereignty over the territorial sea and shall have rights to exploit benefits from marine resources in exclusive economic zone where committing of some activities are not permitted.

Launching of EU controlling measure of fishing in trading partners under the regulation of World Trade Organization European Commission enacted Council Regulation (EC) No 1005/2008 of 29 September 2008 establishing a community

system to prevent, deter and eliminate Illegal, Unreported and Unregulated Fishing: EU-IUU Regulation. The Regulation, entering into force on 1 January 2010, has been enforced on all fishing vessels of EU member states mooring alongside piers and enforced on goods shipping. The Regulation has moreover been enforced on fishing vessels of the third countries mooring alongside piers in the EU, which is the market state by virtue of the Regulation approved by WTO, and enforced on fishing products imported and exported to the EU.

EU-IUU Regulation puts emphasize on that each country shall certify that sources and methods of fishing and producing processed seafood (except for freshwater animals, animals from husbandry, ornamental fish, bivalves as prescribed in the Regulation) are accurate in accordance with related laws so as to ensure that the countries comply with natural conservation, domestic management, international standard, as well as, the Regulation. Traceability is consequently applied to inspection of fishing products importing from and exporting to the EU. If such products are inspected that they are from or related to IUU Fishing, and if the countries which export and import such products cannot comply with the agreements under international laws to prevent, deter, and eliminate IUU Fishing, the Commission shall notify (issue a yellow card) and suggest the countries resolve such problems within limited time. If they are able to improve such worries, the Commission shall permit them to export the products to the EU (issue a green card). If not, the Commission shall not permit them to export the products to the EU (issue a red card) after EU-IUU Regulation enters into force.

Thailand's Fulfillment of the Agreement Causing Fishing Crisis

Thailand's policy on resolving the problems in accordance with the EU's agreement dramatically affected operation of fishing business. The impact that large business got was greater than an effect that local fishing got. Both fishing business and export industry which are in similar business cycle have been stagnant. Currently, there are some fishing businesses operating. They operate their business in oversea areas and apply for a catch certificate in exclusive economic zone and in the sea of other countries.

The Commission considered that Thailand could not comply with international agreement as a flag state, port state, coastal state, and market state. Besides, the country inadequately prevented, deterred, and eliminated Illegal, Unreported, and Unregulated Fishing. The reason why Thailand was not able to perform its duties as prescribed by the international agreement were that the country did not comprehend the agreement made by rich countries. Readiness preparation of

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related agencies, inadequacy of cooperation with neighboring countries, inadequacy of laws and administrative tools, as well as, attempt to enforce law were also causes of failure of Thailand to comply with the agreement which can be detailed as below.

1) As a flag state, Thailand failed to deter Thai vessels from joining in IUU Fishing as prescribed by UNCLOS 1982. It was reported that fishing vessels with Thai flag infringed measure of fishing area preservation and administration. The fishing activities were committed without valid certificate and without permission granted by a flag state or coastal state and without Vessel Monitoring System: VMS installation in the high sea and in the sea of coastal states. Vessel registration and certificate verification in Thailand were controversial. Additionally, there was inadequacy of enforcement of vessel registration in Thailand.

2) As a coastal state, Thailand failed to assure that the consumption of ocean resources in the Exclusive Economic Zone: EEZ was committed with awareness of science, environment, and economy so as to gain best benefit as prescribed by UNCLOS 1982 and IPOA-IUU. The provisions of Fisheries Act B.E. 2558 (2015) did not comply with international law and could not deal with complicate fishing activities, and problems of fishing product trade at such situation. The law was enforced just in the fisheries in Thai water and in EEZ. There was insufficient punishment to effectively deter IUU Fishing. Thai fishing vessels increased whereas fish stock decreased due to over fishing. Fewer 1/5 of Thai vessels (about 40,000 vessels) sailed with fishing logbook. This reflected that most of Thai fishing activities were not reported and the vessels sailed without VMS installation especially fishing vessels in oversea water. Thus, locations where there were fishing activities were not identified. It caused trouble with transmitting data with neighboring countries. Finally, this affected accuracy of Thai catch certificate verification to catch ocean animals³ (Wichan Sirichai Ekawat B.E. 2562).

3) As a port state, Thailand failed to assure that imported fishing products were not from IUU Fishing, since some ingredients of processed products were some ocean animals gathered from IUU Fishing on fishing vessels with a flag of the third countries where the Commission considered that failed to deter IUU Fishing. Some of the products besides were from the third countries which did not comply with EU-IUU Regulation. Marine Department does not have authorities to inspect, approve, and refuse vessels mooring at the piers to ship fishing products from vessels of the third countries.

4) As a market state, Thailand failed to comply with the agreement under international law to deter processed products produced by ingredients gathered from IUU Fishing, since Thailand could not assure that products shipped at piers and distributed to processing factory in Thailand were not from IUU Fishing. Thailand failed to enforce measure prescribed by CCRE and IPOA-IUU so as to improve transparency of the market so that risks of trading IUU Fishing products was decreased. Thailand failed to approve the transparency and failed to trace the products back to their origin before allowing them to be taken to the market as prescribed by IPOA-IUU.

The EU was the first one who employed measure to prevent, deter, and eliminate IUU Fishing Measure as Non-Tariff Barrier under the condition of WTO with the claim that it promotes responsible and sustainable fishing, and that it promotes IUU Fishing in accordance with cooperation measure launched by Food and Agriculture Organization: FAO.

II. CONCLUSION AND RECOMMENDATION

Effects of complying with the agreement of the European Union to solve IUU Fishing problems on Thailand is to be compelled to accept indirect trade barrier, since Thailand failed to immediately lay down regulation on Thai fishing vessel to comply with rules of the EU, and Thai fishing entrepreneurs have limited budget and do not reach modern technology. As a results, to immediately and strictly solve the problems, Thailand issued a yellow card to the Thai fishing industry in accordance with the EU's suggestion, inspection, and evaluation by discussing with powerful entrepreneurs, and gathering data about local fishing in order to support the government in implementation. As there have not been gathering of fact, participating and opinion sharing of all the stakeholders concerned, the Thai fishers and Thai fishing entrepreneurs are affected throughout the country.

Fishing entrepreneurs and stakeholders both public and private sectors should study international agreement, such as, marine law, and law of WTO, so as to strengthen their knowledge to be ready for competition and to develop their fishing business. There should be environmental supports and courses about environment preservation.

The major aim of this study is to investigate international agreement which is unfair to be enforced in developing countries in the areas of investment of local fishing and medium fishing business. They have inadequate equipment and cannot afford to change their vessels size to meet international standard. Thailand and other developing countries that are facing the same crisis have lost their opportunity in fishing export competition. Only the developed

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countries are allowed to fully exploit benefits from the ocean by environment measure under obligations of WTO which cause loss of advantages of developing and undeveloped countries. This does not conform to the notion of freedom of the ocean under the United Nations Convention on the Law of the Sea and the United Nations Universal Declaration of Human Rights.

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The Implementation of Implied Term to the Franchise Agreement in Thai Legal System

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Abstract— Franchise businesses, whether local or international brands have received much attention from many Thai entrepreneurs. Such attention arises in the private sector and captures much of the public sector's interest, which encourages the private sector to utilize more benefits from the franchise system. Ironically, contrary to the growing trend of franchise business, Thailand still does not have any official franchise law. Generally, people view a franchise agreement as an unfair agreement in which the franchisee usually has little to no bargaining power against the franchisor. Many countries have alleviated such a problem by initiate the concept "Implied Term," which consider as an obstacle to the concept of the franchise business itself and its business operation. This article aims explicitly to analyze the dilemma of using the Implied Term in the context of the Good Faith principle in the disputes related to franchise agreements in Thailand. Such analysis shall construe through various comparisons with the foreign courts' judgments. This article shall also propose efficient ways to harmoniously apply the Implied Terms into the context of the franchise agreements under Thai law. Moreover, thus, mitigate adverse effects upon the franchise business entrepreneurs in Thailand.

Keywords— Good Faith, Implied term, Franchise agreement

I. INTRODUCTION

At present, Thailand does not have an official Franchise law. Thus, the court shall construe all franchise agreements through the concept of contract law in the Civil and Commercial Code (CCC). Additionally, the court also uses the general principle of law, the Good Faith Principle, which is considered an Implied Term with the interpretation process. However, this method causing uncertainty and conflict for the franchise agreement itself since the terms and conditions of the agreements are already explicitly agreed upon by both parties. Therefore, this implication can adversely affect the system of franchise business in Thailand.

The trend for franchise business has gradually gained more attention for the past 20 years. This trend resulted from the motivation and influence from both public and private sectors to encourage equipped small and medium-sized enterprises (SMEs) to utilize franchise strategy to expand their business. Department of Business Development under the Ministry of Commerce has also enabled this by setting up several seminars to teach thousands of Thai entrepreneurs for many years. Moreover, several attempts to propose the franchise law bill but up until now still fall short. Moreover, unfortunately, in this recent years, the Office of Trade

Competition Commission (OTCC) has received numerous complaints from franchisees that the franchisor has taken advantage of them with unfair franchise agreements. These complaints lead to the franchise guideline of 2019 and 2020 to regulate the franchise business and protect the franchisee.

II. DESCRIPTION

The unique characteristic of a franchise agreement that distinguishes it apart from the usual business agreement is the legal relations between the franchisor and franchisee. A franchisor who is an owner of the brand possesses much more experience, business expertise in the franchise business, and a higher leverage status. On the other hand, a franchisee is another party who would like to start its own business without firsthand experience by exploiting the well-known franchise brand reputation and the knowledge-sharing system from the franchisor. In short, a franchisee wants to start a business that has already been proven successful by the franchisor. So for the franchisor, when licensing out their business, the main issue for a franchise business is to maintain the brand standard. Since only one infringement might cause damage to the franchise brand's reputation, all franchisees who operate the same franchise brand shall also receive the effect. This situation is rarely happening in other types of business agreements. Thus, the franchise agreement always strictly

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stipulated multiple responsibilities for the franchisee to guarantee its brand standard and prevent any future mishap. Another uniqueness of franchise agreement is the agreement term which usually covers an extended period. Furthermore, to prevent any unexpected event in the future, the franchisor typically has an Agree-to-agree-term within the franchise agreement to support unforeseeable changes in the future. This term will require all franchisees to obey in case they need to change anything beforehand. In addition, this term allows the franchise agreement to be more flexible to adjust its business model to suit any situation. Still, it also creates a loophole for the franchisor to take advantage of the franchisee.

The interpretation of a franchise agreement using an Implied Term, the Good Faith principle, to solve any unjust in the franchise agreement has been widely accepted in common law and civil law countries. However, such application of the Good Faith principle is conflicts with the franchise business system itself and may lead to limitations when operating a franchise business.

This article shall be mentioning the application of the Good Faith principle in Thailand comparing to the United States. The case studies shall examine the store territory and termination clauses to suggest how to harmoniously apply the Good Faith principle to the franchise agreement, which does not obstruct the franchise system but facilitates Thailand's franchise business operation.

A. The Good Faith principle in the Thai legal system

According to Civil and Commercial Code Section 171, when interpreting the contract, one must seek the true intention of the contract rather than the literal meaning of the words or expressions. Moreover, when the true intention of the contract cannot be found, section 368 of the Civil and Commercial Code stipulated that the contract shall be interpreted according to the requirement of good faith, ordinary usage being taken into consideration. Such Good Faith principle is based on the German law principle of *Treu und Glauben*,¹ which means sincerity and faith. This Good Faith principle in Thai law is considered a provision related to public order or good morals, which ones cannot agree otherwise.

The application of the Implied Term, the Good Faith principle, Thai court has been used as a tool to provide justice to parties in both when there is an explicitly express term in the contract and when there is not. There may be chances that the court judgment can conflict with the contract's express term for the latter.

The direction of the Thai court ruling can be categorized into two groups; one which interprets per the literal meaning in the contract. Another group interprets the purpose with the usage of the Good Faith principle.

The First ruling direction example is the Supreme Court Decision No.6329/2552. The court ruled that the defendant's ground for termination of the contract cannot be heard because it has not been agreed upon in the contract by both parties. In Supreme Court Decision No.53/2546, the court ruled that no contract clause allows the plaintiff to terminate the contract before the due date. For that reason, the termination of the contract by the plaintiff before the due date is illegal. This direction of court ruling affirms the right and responsibility of both parties, which has been explicitly written in the agreement, and both parties can expect what they need to do clearly.

The second ruling direction will use the Good Faith principle as a tool for interpretation. In Supreme Court Decision No.1687/2551, the court ruled that even if the contract has given the plaintiff the discretion to decide whether to terminate the agreement or not, but the plaintiff's action that chooses not to terminate the contract with the intention to collect a higher rate of interest shall be deemed as a dishonest exercise of a right. For Supreme Court Decision No.2171/2518, the plaintiff sued the defendant to sell half a piece of land to the plaintiff for the price of 52,000 THB. Later, both parties have made a settlement agreement that stated that the defendant was willing to sell the land for the plaintiff at the price of 52,000 THB. The court ruled that even if the settlement agreement does not clearly state the exact amount of land that the defendant agrees to sell. The interpretation for this shall be made from the true intention of the defendant, which agrees to sell only a half piece of land. The last example is Supreme Court Decision No.5674/2545. The court stipulated that the plaintiff must issue a promissory note that the bank accepts even though the purchase and sale agreement does not specify. Thus, the court ruled to conform with the regular tradition when purchasing or selling a high price of land. These usages of Implied Term demonstrate the action of the court, which is trying to create justice. Instead, this may also raise some concerns that the explicitly agreed term of the contract cannot be fully enforced and shall affect the solidarity of the agreement itself, especially in the scenario of the franchise agreement.

The application of the Good Faith principle, on the one hand, helps protect the franchisee, which can be taken advantage of. However, on the other hand, this could adversely affect the franchisor's right when they were trying to adjust their business model.

Next, the author shall raise some example of the court ruling of the United States to exhibit the application of the Good Faith principle which disturb the concept and principle of the franchise business.

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B. The application of the Good Faith principle in the franchise agreement in the USA

Franchise business originated in the United States and has received much attention. Therefore, the United States also has a lot of franchise agreement-related disputes. The direction of the United States court ruling can be categorized into two groups as follows;

1. The group which apply the Good Faith principle

In this group, the court applies the Good Faith principle, which can be seen in many judgments. For example, *Vylene case*,² the franchise agreement does not grant a franchisee a territorial exclusivity right, so a franchisor is able to open a new store a mile further away from the franchisee's shop. The court ruled that even if the franchisee does not have any territorial exclusivity right to prohibit the franchisor from setting up a nearby shop. The action of opening a new shop with little distance between both shops shall be considered infringing upon the Implied Term that one shall conduct business fairly and impartially.³ Furthermore, the court also ruled that the extension clause of the agreement term, which cannot be commercially executed, is also considered an unfair act. This ruling openly stated that the Implied Term prevails over and can substitute the explicit franchise agreement. In the *Carvel Corp case*,⁴ the use of the franchisor's discretion to approve the location of the franchise shop has been ruled as an unfair act without mentioning the rationale behind such discretion that there is a lack of confidence in the location's choice. This case also demonstrates another example that the Implied Term can be used to limit the discretion of a franchisor from choosing the preference shop's location, which is considered a prime factor for the success of franchise business. With such importance, the franchisor who possesses more valuable experiences should select a better location than the franchisee. Hence, the location selection usually part of the franchisor's responsibility.

Another case to note is *Dunfee v. Baskin Robbins, Inc.*⁵

The Montana Supreme Court found that the franchise relationship is inherently a business and refuses to decide that the franchisor has a fiduciary duty or not. The court stated that the franchisor should perform these implied terms, the Good Faith principle, and affirm that mere honesty is insufficient. Additionally, the court ruled further that "neither parties will do anything which will injure the right of the other parties to receive the benefit of the agreement."⁶ Comparing these ruling from *Dunfee* to the *Lippo v. Mobile Oil Corp. case*,⁷ which the court held that the implied term of the Good Faith principle could restrict the franchisor from terminating the franchise agreement even when the franchisee had breached an explicit fundamental term of the agreement. In this case, the defendant claimed that the plaintiff breached the franchise

agreement by selling the misbrand gasoline under the Mobile brand and using the Mobile's equipment. Judge Richard Posner, dissenting and argue that "the duty of good faith should rest on both parties to the contract, and argued further that the court, by twisting the contract terms to help the little man who was dishonest but would hurt the little man who remains honest."⁸

Some court ruling even went further to concluded that the fiduciary duty was an inherent part of the franchise relationship.⁹ But the Federal District Court in *Picture lake Campground v. Holiday Inn.*,¹⁰ held a different idea, the court ruled that the fiduciary duty in *Arnott's case* was, in reality, a duty of good faith and not the type of fiduciary duty found in an attorney-client relationship which required the utmost good faith and prohibited self-dealing on the part of fiduciary.

2. The group which decline the application of the Good Faith principle

This group of ruling places much value in the explicit clause of the agreement. For example, in the *Massey case*,¹¹ the court judged that the explicitly written agreement should have more weight than a general legal principle even if the court saw room for applying the Good Faith principle. Therefore, applying the general legal principle, including the Good Faith principle, shall not replace the explicit agreement. For the *Corenswet case*,¹² the court ruled that when the agreement allows parties to terminate the contract for any reason, then the franchisee cannot claim that the termination of the agreement from the franchisor is unfair with no solid reason cannot be used. Another case is the *Dome Stadium Hotel*¹³ when the agreement does not grant any territorial exclusivity to the franchisee. Hence, the franchisor has a right to operate in any territory with no limitation.

This group of court's judgments affirms the clarity of the settled franchise agreement and the parties' intention when executed the agreement. Nevertheless, solely strict to literal wording in the agreement can cause unfair treatment. For instance, to terminate a contract with or without reason can significantly affect the franchisee since all the investment shall be made from the franchisee. In addition, the franchisee can no longer use the trademark and not open the same type of business as the franchisor due to the non-competition clause. In contrast, the franchisor does not lose in terms of any property at all.

Applying the Good Faith principle as an Implied Term in the franchise agreement can help protect the franchisee from being exploited by the franchisor. However, without a clear set of rules, this could also jeopardize the core value of a franchise business. Since much of the core values of the franchise business still need to use the franchisor's discretion,

such as choosing shop locations, the adjustment of business, or even creating a new product.

As a result, applying the Good Faith principle in the context of a franchise agreement shall strike a perfect balance between providing protection to the franchisee and maintaining the management power of the franchisor, which the author shall elaborate further in the next part.

C. The rationale of the conditions in the franchise agreement

A franchise agreement has been designed to fulfill two objectives which are (1) maintain control over all franchisees to uphold the standard of the franchisor, the reputation, and the value of the trademark brand and (2) achieve the intended business goal. The franchise agreement usually has a lengthy contract term, so it is normal for a franchisor to adjust the business model to suit the current situation from time to time. Such changes shall also be imposed on all franchisees who operates the same trademark so that the essential characteristic of a franchise business will be maintained. The inconsistency of standard and protocol among all businesses of the same brand can create much confusion for the customer and jeopardize the core principle of the franchise business.

The franchisor has a responsibility to plan and adjust its business model to be consistent with the situation, and this task required much experience and expertise. The franchisee who is usually lacking in these kinds of knowledge and, for that reason, choose to enter the franchise agreement instead of starting their own business typically have a lower bargaining status than a franchisor. This uneven level of power made a franchisee have to obey what the franchisor suggests even if, in some scenarios, a franchisee may be the one who put in the recommendation. In the end, the franchisor is still the one who is a final decision-maker. On such grounds, the refutation of the franchisor's discretion by the franchisee or the application of the Good Faith principle in the form of Implied Term will disrupt the core value of the franchise business. The intervention then shall prevent the franchisor from adjusting its franchise brand as it deems suitable and consequently affects the turnover or even the expansion of the business. The author would like to describe the business rationale behind the franchise agreement to clarify the complication and effect of the intervention of the franchisor's discretion as follows;

1. The determination of the store territory

A franchise agreement can explicitly set the franchisee store territory, such as a clause that specifically states that the franchisor shall not open any other store within 2 miles' radius from the franchisee's shop. Alternatively, some agreements may not give any store territory privilege to a franchisee. This

type of agreement means that the franchisor has an unlimited right to open a new store even if it is located close to the franchisee's shop.

The consideration for this issue is the changing environment of the territory. For example, the increasing population of the location which the franchisee's shop is unable to support the growing numbers of customer. This incident will damage the brand's popularity and image. The solution is either expanding the shop's area or adding more shops. Suppose that the franchise agreement restricts this action by stipulating a clear territory of the franchisee's shop. This can lead to lower service standards and allowing the competitor to open a shop within the same location.

The concern in allowing the franchisor to open up another shop in the nearby area will take away customers is hardly happening since the franchisor would not want to lower the income that they usually receive from the franchisee such as royalty, product, and raw material cost. Moreover, they also do not want to affect the prearranged payback plan adversely. These outcomes will create a drawback to those interested in the franchise brand, so in practice, the franchisor will give the franchisee a right of first refusal.

2. The assignment of a right

A long-term business agreement usually specified the criteria for the assignment of right. However, in the franchise agreement, such assignment right is typically prohibited unless the franchisor permits an assignment and approves a transferee. This condition will indeed affect the franchisee's right as a sole investor in the shop should have full power to assign the right to others. This restriction can be seen as an unfair limitation.

The concern for this issue is that the quality of a franchisee is an essential part that the franchisor needs to examine thoroughly to find the most suitable candidate to be a franchisee and received all business knowledge sharing and business secrets. The unfitted candidate who can access the brand's knowledge and business secrets can damage the brand's popularity. For that reason, even if the restriction of a right assignment can be seen as the limitation of the franchisee's right, it has a reasonable and solid ground for it.

3. The termination of an agreement

a franchise agreement usually prescribes numbers of responsibility for a franchisee and an Agree-to-agree-term, which will compel the franchisee to follow the unpredictable term. The breach of agreement may vary in the result, but it still can lead to the termination of an agreement. The franchisee can lose all the investment money or be restricted from operating a competing business to the franchisor for some time.

To remark that the infringement of a prescribed agreement can negatively affect the brand and other franchisees that abide by the term. Therefore, a franchise agreement needs to list all the detail and responsibility to regulate all franchisees efficiently to avoid such loss. Hence, an Agree-to-agree-term is also necessary to manage an unpredictable change in the future to sustain the business competition of changing consumer behavior.

D. The workable approach in implementing the implied term

Even if those contract terms sound reasonable from the franchise business perspective, it cannot deny the fact that it also creates a loophole for some franchisors to take advantage of the franchisee. The author agrees that applying the Good Faith principle as an Implied Term is still necessary to uphold the fair and balanced relationship between parties. However, such application shall also consider the condition of the franchise agreement to maintain the core value of the franchise business. The author suggesting the application of the Good Faith principle into three categories as follows;

1. The complete condition prior to the execution of the agreement

This type of condition is when the franchisor has predetermined all details before executing the agreement with the franchisee. If the franchisee does not agree with the condition, the only option is not to sign the agreement. However, if the agreement has been signed, both parties cannot modify or adjust the detail without prior consent from another party. Examples of this type of condition are franchise fee, royalty fee, or marketing fee.

This type of condition should not apply the Good Faith principle because the franchisee is aware of this information beforehand and can decline or accept such condition freely as it is deemed proper. The decision to choose whether to enter into a franchise agreement solely corresponds to the freedom of contract principle. As a result, one cannot argue that a condition has been determined unfairly, and the court should strictly follow this predetermine condition.

2. The condition which requires the discretion of a franchisor

This condition will require the franchisor's freedom to adjust and modify the business model or business practice to achieve the established goal. This condition shall also include the Agree-to-agree-term. Examples of this kind of condition are the adjustment in the shop's opening hours to suit the market condition, the adding of new products or services, and the modification of equipment to increase the efficiency of a business.

This type of condition shall require applying the Good Faith principle, and the franchisor also needs to demonstrate the good cause for the use of discretion. The franchisor must reasonably justify the rationale why they think such a condition shall positively affect the business. For example, suppose the franchisor demand to change to the more expensive equipment but have the same efficiency level as the usual one. In that case, the franchisor should justify its reason, such as the marketing research, which shows that such a tool can support customer preference better than the previous one.

3. The condition which the franchisor has a conflict of interest

This type of condition that the franchisor has a conflict of interest, which can be incompatible with the franchisee's benefit. The author believes that the franchisor must have a proper business judgment rule¹⁴ that can genuinely clarify and compare its benefit with the franchisee's benefit. This action will show sincerity and transparency of how the franchisor conducts business in order to gain the franchisee's trust and guarantee a successful business companionship together. For example, the shop's location, whether it needs to be subleased from the franchisor or the franchisor, will get a commission fee from a landowner. Moreover, for the raw material that the franchisee needs to buy from, whether the franchisor gets a commission's fee from it or not, such conflict of interest should be reasonably justified.

With this kind of condition, the author believes that an utmost good faith principle must be applied because the franchisor should provide a professional standard of service to its franchisee as promised and trusted by the franchisee. The franchisor is considered a curator for other people's business or property, so the fiduciary duty principle, the duty of care principle, and the duty of loyalty should be maintained.

As explored earlier, the Good Faith principle is a fundamental principle in the Thai legal system, and thus, both parties should act in good faith.¹⁵ Furthermore, both parties should perform a higher level of good faith in the insurance contract, which required the utmost good faith principle. This principle originated in Article 17 of the Marine Insurance Act, 1906 of England, which stated that "The marine insurance contract is based upon the utmost good faith." This principle, also known by its Latin name "uberrimae fidei," is a minimum standard, legally obliging all parties entering a contract, mainly the financial transaction contract and insurance contract, to act honestly and not mislead or withhold vital information from other parties. The utmost good faith principle assures that the parties to the contract must act truthfully and ethically.

The Thai Civil and Commercial Code has adopted this principle into Article 865, which stated that both parties of the insurance contract need to disclose all the information in their

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knowledge unilaterally to other parties. Otherwise, the contract can be void or terminate. Compared with the franchisor-franchisee relationship, the author opines that the franchisor has a fiduciary duty to the franchisee, particularly when the franchisor has a conflict of interest. The franchisor should not take advantage of the imbalance of knowledge and expertise between the franchisor and franchisee. As elaborated earlier, the franchisee could start his own business without entering into the franchise network. However, the franchisee trusts the experiences and expertise of the franchisor, so they chose to enter the franchise agreement and allowed the franchisor to lead the franchisee's business to success as the business plan. The franchisor needs to act fairly and honestly in return to his business partner and uphold the fiduciary duty by declaring and disclosing all related information in making any discretion that might affect the franchisee's business.

III. CONCLUSION

The franchisor shall have the duty to support the franchisee's business to succeed as planned. Furthermore, when it is deemed suitable, the franchisor shall use its experiences and expertise to make the business survive and flourish. This is the crucial point of the franchise business, attracting the franchisee to invest in the business. According to the condition's type, applying the Good Faith principle in various intensity levels shall be simple for all parties to understand and recognize their right and responsibility. Additionally, this will strengthen the contract stability without diminishing the franchisor's discretion when necessary to do so and encourage the growth of business franchisees in Thailand.

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- [13] *Domed Stadium Hotel, Inc. v. Holiday Inns, Inc.* 732 F.2d 480 (5th Cir.1984), *McDonald's Corp. v. Watson*, 69 F.3d 36 (5th Cir. 1995).
- [14] The Business Judgement Rule is the Common law rule in corporate law. Many countries adopt this rule in their laws. For example, the United States in *Gimbel v. Signal Cos.*, 316 A.2d 599, 608 (Del. Ch 1974); Canada in *BCE Inc. v. Debentureholders*, 2008 SCC 69 (CanLII), [2008] 3 SCR 560; and Australia in *Corporations Act, 2001, section 180(2)*, *Australian Securities and Investments Commission v. Rich* [2009] NSWSC 1229.
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A Construction of Futsal Skills Tests for Undergraduate Students of Rajamangala University of Technology Thanyaburi, Thailand

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Abstract— *The purposes of this research were to construct futsal skills tests and to establish norms of futsal skills for undergraduate students of Rajamangala University Technology Thanyaburi (RMUTT), Thailand. 260 samples of RMUTT students were used to study in 2 areas: 60 RMUTT students for studying on the quality of the futsal skills tests, and 200 RMUTT students for establishing norms of futsal skills. The data were analyzed by percentage, mean, standard deviation, and the quality of the tests was analyzed by Pearson's product moment correlation coefficient. The research results showed that the instruments for the futsal skills tests constructed in this research comprised 3 tests: 1) dribbling test, 2) wall test, and 3) shooting test. The objectivity and reliability were at a very high level ($r = .908 - .995$) with the statistically significant level of .05. Further, the scores of 3 tests were positively related at a very high level ($r = .907 - .985$) with the statistically significant level of .05. These could be indicated that the content validity of the futsal skills tests constructed in this research was at a very high level. Considering the test results of dribbling test, wall test, and shooting test, the average test scores of male students were 17.76, 15.85, and 7.77 respectively; and the average test scores of female students were 29.99, 10.60, and 6.93 respectively. Also, the norms of futsal skills in this research were divided into very good, good, average, acceptable, and weak.*

Keywords— *Futsal, Skills Test, Norm, Higher Education*

I. INTRODUCTION

Thailand has been affected by critical global issues and changes. Advances in science and technology play an important role in daily life, especially for the sake of convenience, so most people lack movement. In addition, health risky behaviors like a lack of exercises, eating unhealthy food, stress at work, not getting enough sleep, smoking, drinking alcohol, lead to serious health conditions, for example, declining in muscle mass and strength, a circulatory disorder, etc. These can cause diabetes, hypertension, heart disease, obesity as well as the cause of death. Physical activities and playing sports can promote health and physical performance and prevent illness and diseases. Futsal is a kind of sport that is similar to football (soccer) and gains widespread popularity among students and young people, and futsal is also taught in schools. Futsal is a physical activity to promote and develop athletic skills, body movement in order to improve physical and mental health.[1] said that the purposes of physical education were physical, mental, emotional, and social development. That is important for physical performance promotion. Students should practice

how to play futsal correctly, such as passing, dribbling, and shooting. Learning measurement and evaluation is important for physical education to stimulate students' development, while teachers can use them to improve teachers' teaching. The measurement and evaluation should reflect the real performance of students, so the good test is needed. A construction of tests has to be considered about the skills of each sport and based on reliability, validity, and objectivity [2] [3]. As a teacher, the researchers realized the importance of physical activities, especially futsal that the researchers are responsible to teach. However, there were no futsal skills tests for the students at Rajamangala University of Technology Thanyaburi (RMUTT), so this research aimed to construct the futsal skills tests to support students' physical, mental, emotional, and social development as well as teaching and learning physical education.

II. RESEARCH OBJECTIVES

The purposes of this research were to construct futsal skills tests and to establish norms of futsal skills for undergraduate students of Rajamangala University Technology Thanyaburi (RMUTT), Thailand.

III. RESEARCH METHODS

A. Research Design

This research was conducted on 260 RMUTT students: 60 RMUTT students who used to study Team Sports were purposively selected for studying on the quality of the futsal skills tests; and other 200 RMUTT students who studied Team Sports in the academic year 2019 were chosen by simple random sampling for establishing norms of futsal skills. The research instruments were 3 futsal skills tests consisting of a dribbling test (IOC = 0.90), a wall test (IOC = 0.90), and a shooting test (IOC = 0.80) that were approved by 5 experts. Test-retest method was applied to this research. Firstly, the futsal skills tests were tested with 60 RMUTT students (30 males and 30 females) and were administered by 3 scorers. The reliability of the tests was between 0.908 - 0.995. Then a week later, the futsal skills tests were retested with the same samples and were administered by the same scorers to assess the reliability between test and retest scores by using Pearson Product-Moment Correlation Coefficient ($r = .907 - .985$). After that, all 3 futsal skills tests were tested with 200 RMUTT students (100 males and 100 females). The collected data were analyzed by mean, average, standard deviation, maximum, minimum, mode, median, and Pearson's Product-Moment Correlation Coefficient. And the scores of the futsal skills tests were ranked into 5 levels: very good, good, average, acceptable, and weak.

B. Research Process

This research was divided into 5 steps as shown in Fig. 1.

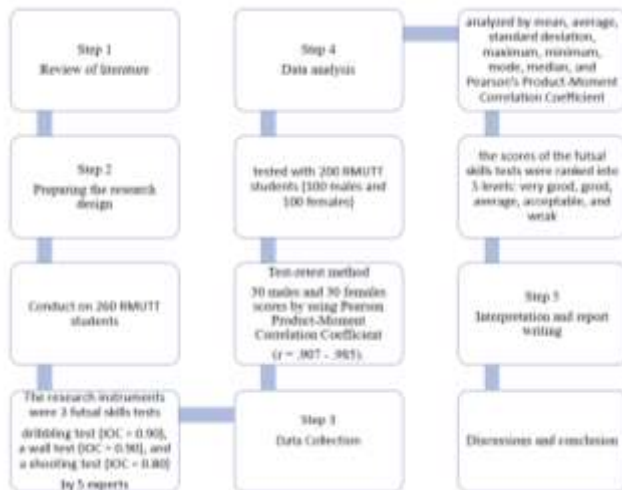


Fig. 1 Research process

IV. RESEARCH RESULTS

1. The objectivity of the futsal skills tests was analyzed for Pearson Product-Moment Correlation Coefficient and the research results revealed that the objectivity of futsal

dribbling test was positive in a very high level at the statistical significance of .05 ($r = .990 - .995$); the objectivity of a wall test by kicking a ball against the wall for 30 seconds was positive in a very high level at the statistical significance of .05 ($r = .909 - .953$); and the objectivity of a shooting test by was also positive in a very high level at the statistical significance of .05 ($r = .908 - .957$) as shown in Table 1.

Table 1 The objectivity of the futsal skills tests from analysis of correlation coefficient by 3 scorers

Futsal Skills Tests	PE1:PE2	PE2:PE3	PE1:PE3
A dribbling test	.990*	.995*	.992*
A wall test	.909*	.953*	.915*
A shooting test	.942*	.957*	.908*

* $p < .05$; PE1 = the 1st scorer, PE2 = the 2nd scorer, PE3 = the 3rd scorer

2. The reliability of the futsal skills tests: a dribbling test, a wall test, and a shooting test; created by the researchers was analyzed from the test and retest scores by using Pearson Product-Moment Correlation Coefficient and the research results were found that indicated that the reliability of 3 tests for male students was positive in a very high level at the statistical significance of .05 ($r = .970, .928, .949$). However, only the reliability of the dribbling test for female students was positive in a very high level at the statistical significance of .05 ($r = .979$). Other tests (a wall test and a shooting test) for female students had the positive reliability in a high level at the statistical significance of .05 ($r = .858, .836$). In conclusion, overall reliability of all 3 tests (both males and females) were positive in a high level at the statistical significance of .05 ($r = .985, .907, .923$) as shown in Table 2.

Table 2 The reliability of the futsal skills tests from analysis of correlation coefficient between test and retest scores

Futsal Skills Tests	Test	Retest	R	Sig.
Males (n=30)				
A dribbling test	17.81 (± 6.17)	17.27 (± 5.76)	.970*	.000
A wall test	16.20 (± 4.95)	16.43 (± 4.75)	.928*	.000
A shooting test	10.13 (± 4.55)	11.33 (± 4.55)	.949*	.000
Females (n=30)				
A dribbling test	27.98 (± 5.86)	27.87 (± 5.67)	.979*	.000
A wall test	11.73 (± 4.00)	13.33 (± 4.31)	.858*	.000
A shooting test	8.10 (± 2.62)	9.83 (± 3.02)	.836*	.000
Total (n=60)				
A dribbling test	22.90 (± 7.87)	22.57 (± 7.79)	.985*	.000
A wall test	13.97 (± 5.00)	14.78 (± 4.80)	.907*	.000
A shooting test	9.12 (± 4.42)	10.58 (± 4.25)	.923*	.000

3. The futsal skill performance of RMUTT students in dribbling (as a dribbling test), kicking a ball against the wall for 30 seconds (as a wall test), and shooting a ball (as a shooting test) was summarized and presented by genders as shown in Table 3 and Table 4.

Table 3 The futsal skill performance of male students

Futsal Skills Tests	\bar{x}	S.D.	Max.	Min.	Range	Mode	Median
A dribbling test	17.76	5.30	30.50	7.40	23.10	13.00	16.57
A wall test	15.85	3.36	29.00	5.00	24.00	15.00	16.00
A shooting test	7.77	5.36	19.00	0	19.00	1.00	7.00

According to Table 3, 100 male students (n=100) were tested by using the futsal skills tests constructed by the researchers. The average of a dribbling test was 17.76 seconds/a time with a standard deviation of 5.30. The average of a wall test was 15.85 times/30 seconds with a standard deviation of 3.36. And the average of a shooting test was 7.77 points with a standard deviation of 5.36.

Table 4 The futsal skill performance of female students

Futsal Skills Tests	\bar{x}	S.D.	Max.	Min.	Range	Mode	Median
A dribbling test	17.76	5.30	30.50	7.40	23.10	13.00	16.57
A wall test	15.85	3.36	29.00	5.00	24.00	15.00	16.00
A shooting test	7.77	5.36	19.00	0	19.00	1.00	7.00

According to Table 4, 100 female students (n=100) were tested by using the futsal skills tests constructed by the researchers. The average of a dribbling test was 29.99 seconds/a time with a standard deviation of 6.44. The average of a wall test was 10.60 times/30 seconds with a standard deviation of 3.79. And the average of a shooting test was 6.93 points with a standard deviation of 3.69.

4. The norm of the dribbling test

4.1 The norm of the dribbling test for male students could be ranked into 5 levels: below 12.20 score was at a very good level, the score between 12.21 - 16.32 was at a good level, the score between 16.33 - 21.24 was at an average level, the score between 21.25 - 26.26 was at an acceptable level, and more than 26.27 was at a weak level.

Most male student performance in dribbling was at a good level (n=38, \bar{x} = 38.00), followed by an average level (n=29, \bar{x} = 29.00), an acceptable level (n=15, \bar{x} = 15.00), a very good level (n=9, \bar{x} = 9.00), and a weak level (n=9, \bar{x} = 9.00).

4.2 The norm of the dribbling test for female students could be ranked into 5 levels: below 21.45 score was at a very good level, the score between 21.46–27.32 was at a good level, the score between 27.33–32.78 was at an average level, the score between 32.79–37.64 was at an acceptable level, and more than 37.65 was at a weak level.

Most female student performance in dribbling was at a good level (n=39, \bar{x} = 39.00), followed by an average level (n=22, \bar{x} = 22.00), a weak level (n=21, \bar{x} = 21.00), an acceptable level (n=13, \bar{x} = 13.00), and a very good level (n=5, \bar{x} = 5.00).

The scores of both male and female students could be seen in Table 5.

Table 5 The norm of the dribbling test

Skill Levels of Dribbling	Males (n = 100)			Females (n = 100)		
	Scores	n	%	Scores	n	%
Very Good	Below 12.20	9	9.00	Below 21.45	5	5.00
Good	12.21 - 16.32	38	38.00	21.46 - 27.32	39	39.00
Average	16.33 - 21.24	29	29.00	27.33 - 32.78	22	22.00
Acceptable	21.25 - 26.26	15	15.00	32.79 - 37.64	13	13.00
Weak	More than 26.27	9	9.00	More than 37.65	21	21.00

5. The norm of the wall test by kicking a ball against the wall for 30 seconds

5.1 The norm of the wall test for male student could be ranked into 5 levels: more than 21 score was at a very good level, the score between 18 - 20 was at a good level, the score between 15 - 17 was at an average level, the score between 12 - 14 was at an acceptable level, below 11 score was at the weak level. Most male student performance of the wall test was at an average level (n=45, \bar{x} = 45.00), followed by a good level (n=24, \bar{x} = 24.00), an acceptable level (n=22, \bar{x} = 22.00), a weak level (n=6, \bar{x} = 6.00), and a very good level (n=3, \bar{x} = 3.00).

5.2 The norm of the wall test for female student could be ranked into 5 levels: more than 16 score was at a very good level, the score between 13–15 was at a good level, the score between 10–12 was at an average level, the score between 7–9 was at an acceptable level, below 6 score was at the weak level.

Most female student performance of the wall test was at a good level (n=37, \bar{x} = 37.00), followed by an average level (n=27, \bar{x} = 27.00), an acceptable level (n=21, \bar{x} = 21.00), a weak level (n=13, \bar{x} = 13.00), and a very good level (n=2, \bar{x} = 2.00).

The scores of both male and female students could be seen in Table 6.

Table 6 The norm of the wall test

Skill Levels of Kicking a Ball against the Wall	Males (n = 100)			Females (n = 100)		
	Scores	n	%	Scores	n	%
Very Good	More than 21	3	3.00	More than 16	2	2.00
Good	18 - 20	24	24.00	13 - 15	37	37.00
Average	15 - 17	45	45.00	10 - 12	27	27.00
Acceptable	12 - 14	22	22.00	7 - 9	21	21.00
Weak	Below 11	6	6.00	Below 6	13	13.00

6. The norm of the shooting test

6.1 The norm of the shooting test for male student could be ranked into 5 levels: more than 16 score was at a very good level, the score between 12-15 was at a good level, the score between 8-11 was at an average level, the score between 4-7 was at an acceptable level, below 3 score was at the weak level.

Most male student performance of the shooting test was at an average level (n=28, \bar{x} = 28.00), followed by a weak level (n=26, \bar{x} = 26.00), an average level (n=19, \bar{x} = 19.00), a good level (n=17, \bar{x} = 17.00), and a very good level (n=10, \bar{x} = 10.00).

6.2 The norm of the shooting test for female student could be ranked into 5 levels: more than 14 score was at a very good level, the score between 11-13 was at a good level, the score between 8-10 was at an average level, the score between 5-7 was at an acceptable level, below 4 score was at the weak level.

Most female student performance of the shooting test was at an average level (n=36, \bar{x} = 36.00), followed by an acceptable

level ($n=27$, $\bar{x} = 27.00$), a weak level ($n=23$, $\bar{x} = 23.00$), a good level ($n=11$, $\bar{x} = 11.00$), and a very good level ($n=3$, $\bar{x} = 3.00$).

The scores of both male and female students could be seen in Table 7.

Table 7 The norm of the shooting test

Skill Levels of Shooting a Goal	Males (n = 100)			Females (n = 100)		
	Scores	n	%	Scores	n	%
Very Good	More than 16	10	10.00	More than 14	3	3.00
Good	12 - 15	17	17.00	11 - 13	11	11.00
Average	8 - 11	19	19.00	8 - 10	36	36.00
Acceptable	4 - 7	28	28.00	5 - 7	27	27.00
Weak	Below 3	26	26.00	Below 4	23	23.00

V. DISCUSSIONS

1. The results of a construction of futsal skills tests for RMUTT students: a dribbling test, a wall test, and a shooting test; were found that the objectivity of futsal skills tests was positive in a very high level at the statistical significance of .05 because the researchers followed the research process. First, the researchers reviewed the literature involving futsal skills, the principles of test design, and test construction; then the tests were approved by 5 experts for content validity and the tests were improved by the experts' advice. After that the tests were tried out with 60 students by using the test-retest method. The tests were standardized, appropriate, not complicated, taking a short period with clear criteria. As [4] stated, characteristics of a good test should have validity, objectivity and fairness. The test should not be complicated, provide clear criteria, and not take too much time. The results were also consistent with the previous research of [5] found the retest of futsal skills would have higher scores than the first time. The skill test with test-retest method would be more reliable because they were analyzed by correlated coefficient. This would make the tests more qualified and practical. Also, the research of [6] showed that the reliability from test and retest was 0.71 - 0.97 and the objectivity was 0.97 - 0.99, so the test was qualified and practical. Moreover, [7] and [8] said that the reliability referred to the consistency of measure. Even when the test was retested, the reliability would not change.

2. The norm of the futsal skills tests for RMUTT students was from analyzing the scores by genders. After that, the scores were ranked into 5 levels of skills: very good, good, average, acceptable, and weak. The results were consistent with the previous researches of [6], and [9].

VI. RECOMMENDATIONS

A. Recommendations for Practices

1. The objectives of the tests should be informed to test takers. The test should be explained and demonstrated; then the test

takers should be given an opportunity to ask questions, and warm up for 5-10 minutes before starting the tests.

2. Equipment and place for the tests should be prepared, and the scorers should follow the rules. For example, the position of the ball or the feet of the test takers, the wall with smooth surface, etc.

B. Recommendations for Future Research

1. The skills tests can be constructed in different contexts by using this research as a guideline.

2. The skills tests of other sports can be constructed for raising standards of teaching and learning sports.

VII. CONCLUSION

The results of testing all three futsal skills tests for RMUTT students showed that these tests were qualified and suitable to use as measurement tools because of validity, reliability, and objectivity. Furthermore, the norms of the tests were studied in detail with the clear criteria for both males and females, so it will be useful if these tests are applied in other universities.

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Buddhist Concepts and Waste Management of Post-COVID-19 Outbreak

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Abstract— Buddhist concepts and waste management of Post-COVID-19 outbreak are studies by using documentary study and related research. The study found that Post-COVID-19 outbreak caused the problem of waste and the management of consumption waste which will be another case of detention measures, ordering food online, and medical waste from other masks have increased. The public sector must pay more attention to the promotion systematic storage management measures. In Buddhism, there is a concept of raising consciousness through discipline such as social discipline, corporate responsibility and volunteerism in waste separation, toxic waste management, medical waste to be proportionate Discard as advised by the relevant authorities. In the concept of Buddhism, it will be an extension of measures and methods within the framework of encouraging a conscience to see the harm of garbage. It also sees the benefits of the public by managing the waste in their own home, self-discipline, the benefits of society as a whole social responsibility and environment for the benefit of coexistence as a result of tackling waste that is emerging after COVID-19 outbreak.

Keywords— Waste Management, Post-COVID Outbreak 19, Buddhist Concept

I. INTRODUCTION

From the information that appears, it was found that the Thai population had to wear masks every day and change every other day at least 1-2 pieces per day. Since Thailand has measures to lock the country and has measures for people to wear masks From March 2020 until now, it has been more than a year, including legal measures that anyone who does not wear a mask will be guilty and fined. Therefore, the mask used has become rubbish which is not only Thailand but also includes countries around the world. From surveys on waste and waste management such as: (a) the amount of waste that increases with consumption behavior; from the lock down of the country, WFH (Work from Home), which has an effect on stopping the epidemic of buying the virus. However, in other words has caused the behavior of members in society. The whole society stopped moving. Many people have to work from home. As a result, the food ordering business or food delivery has more people calling for the service both in the first phase and in the second phase until the present what follows from Food Delivery is the amount of plastic waste doubled from normal. During the lockdown to stay home, stop germs, for the nation" Kasikorn Research Center Assess whether it is used the Food Delivery application service was 66-68 million times, an increase of 78-84% from the same period last year. growing by leaps and bounds. The most popular applications are LINE MAN and Grab Food, with

usage statistics increasing by 300-400% compared to the pre-Covid period. As a result, the amount of single use-plastics waste such as drinking glasses, stacking dishes, water bottles, plastic dishes and drinking straws has increased exponentially by more than 15%.

Thailand Development Research Institute, Thailand, or TDRI, used to estimate that 1 order of food. There will be an average of seven pieces of plastic waste, including food boxes, sauce bags, plastic spoons, plastic forks, cutlery bags, soup bags and plastic food handle bags. The Thai Environment Institute reported that during the Covid-19 outbreak earlier this year. This caused the amount of plastic waste to soar by 15%, from an average of 5,500 tons per day to 6,300 tons per day, excluding the hazardous waste generated by used masks. It is estimated that the rate of disposable masks is about 1.5 – 2 million pieces per day. Most of which are mixed with general solid waste. Therefore, from the facts and conditions of the problems that arise, they are studied and reflected into articles to present the problematic conditions ready to propose guidelines for managing and solving problems through Buddhist concepts which will be presented in an overview sequentially.

II. THE IMPACT OF THE COVID SITUATION ON WASTE

From the statistics of the phenomenon of the epidemic of COVID-19, this means that the situation of the world is affected in a similar way which means that everything has changed impact of COVID-19 has made many changes on a

global scale both economic, political, lifestyle and especially the environment all over the world have received impact of COVID-19. Some of which are impacts on the environment and climate due to travel restrictions and a significant economic slowdown. This makes air quality and water quality in many countries tend to improve, but vice versa. The rise of plastic waste especially PPE plastic (such as masks and rubber gloves). Infectious waste and other waste from hospitals are on the rise and have a negative impact on the environment.

1. Infectious waste on the rise, September 2020, the journal Bioresource Technology Reports reports[1] that since the outbreak of COVID-19. Medical waste is on the rise around the world which is a threat to people's health and the environment, such as in Wuhan. The epicenter of the novel coronavirus epidemic has more than 240 metric tons of hospital waste were generated every day during the outbreak. This amounted to about 190 metric tons more than the usual time period, as was the case with Ahmedabad, India. The amount of waste from hospitals has increased from 500-600 kilograms per day to 1,000 kilograms per day for Thailand. The proportion of infectious waste across the country is also increasing. Data from the Department of Health revealed that During the past lockdown Thailand has an infectious waste generation rate of approximately 147,770 kilograms per day or higher than the normal period of 1,900 kg.

2. Ineffective use of safety equipment and disposal to prevent viral infection. People are currently using masks, long gloves and other safety equipment without knowledge of how to manage, and store, according to Lancet Glob Health[2] in October 2020, in both the United States and China, which will increase the volume of medical waste. In Thailand, the Thailand Development Research Institute (TDRI) points out that COVID-19 is causing people to use more masks from 800,000 to about 1,500,000 a day, posing a risk of spreading the disease and exposure to the virus by garbage collectors.

3. Increased community solid waste, the increase in community waste many countries (both organic and inorganic) have direct and indirect impacts on the environment, such as air, water, and soil air pollution. This has increased the demand for online shopping for home delivery. Most of the amount of household waste is caused by packaging. Thailand Development Research Institute, Thailand, or TDRI[3], used to estimate that 1 order of food. There will be an average of seven pieces of plastic waste, including food boxes, sauce bags, plastic spoons, plastic forks, cutlery bags, soup bags and plastic food handle bags. The Thai Environment Institute reported that during the first round of COVID-19 outbreak. This caused the amount of plastic waste to soar by 15 percent, from an average of 5,500

tons per day to 6,300 tons per day, excluding the hazardous waste generated from used masks. It is estimated that the rate of disposable masks is about 1.5 – 2 million pieces per day.[4] Most of which are mixed with general solid waste.

From the overview, it reflects that COVID-19 has made the nation's society not the same anymore, everything has changed may use the word different both in society, economy, way of life and lifestyle. Thailand vaccine case creating economic measures to stimulate the economy lending creating financial measures. Therefore, it is necessary and urgent after the situation resolves soon. Therefore, people and nations have to adapt to cope with the differences as reported and quoted. which will be presented next.



Fig. 1-2 Food waste and medical waste in the situation of COVID-19

III. WASTE MANAGEMENT UNDER THE COVID 19 SITUATION

Waste Management has guidelines on waste both medical waste and waste from household use as shown in the research titled Eliminate infectious waste of Thammasat Chalermprakiat Hospital [5]. Research on Integrated Food Waste Reduction in Households [6] (Patranit Srijuntrapun,2016), and research on Development of Community-Based Learning Process in Waste Management at the Source [7], including a proposed approach to cautious waste management as shown in the Self-Care Ability Among Waste Picker[8] or creating knowledge in waste management as in the research, Development of Waste Management Information System for One-stop Waste Management Learning Center. [9] It means, talk about how to deal with medical waste including household waste which means that there is a study of the approach, but in this study, I want to reflect on the subject have a Buddhist concept. This will be a support to help waste management under the COVID-19 situation where the amount of waste occurs in large numbers. Consequently, consciousness and intent result in behavior and action will have an effect and play an important role in determining or participating in systematic waste management with the goal of protecting the environment and reducing the amount of waste in the situation of the COVID-19 epidemic.



Fig. 3-4 Religious use of substitute containers and food ordering to reduce waste

IV. . BUDDHIST WASTE MANAGEMENT

When it comes to Buddhism, there is a concept or principle as a method of practice on promoting or raising awareness among people and citizens in society. In Buddhism, there is the concept of managing things for the benefit of coexistence, which means the environment and waste management. As shown in the Vinaya Pitaka: (1) Do not spit on the pavement, (2) Do not throw food waste into the water source, (3) Do not pour food waste onto the tree, (4) Do not defecate urine into the water source, etc. All of them are guidelines or practices that appear as Buddhist disciplines. Which such guidelines or measures can be applied for waste management in the situation of COVID-19, with the heart of such concepts being conscience or social and collective responsibility. In the current situation, the Sangha with a population of more than 250,000 people has come to have campaign activities through the 5 Precepts Village activities that are driven by the Sangha Sangha Council has promoted and driven. Through more than 40,000 temples across the country, these located in more than 40,000 communities across the country through campaigns to promote through preaching and repeated campaigns to communicate with Buddhists to reduce the amount of food-related waste, such as the use of lunch boxes to reduce the amount of waste reducing the amount of household waste and in public. When the COVID-19 situation spreads, waste from masks and medical waste has increased, Buddhist temples and principles have also contributed to the promotion campaign through consciousness and will which can be classified as follows:



Fig. 5 Religious use of substitute containers and food ordering to reduce waste

1. Social Discipline: Buddhism teaches about precepts, so precepts are the basic consciousness that Thai citizens have seen the importance of protecting the environment and waste management systematically within the framework of possibility Stimulates responsibility and recognizes the importance of systematic waste. When we have to see the effect of ordering food, we see that cups, plates, stacking straws are not needed. We may not accept in the case of those foods that we eat at home, which are already stacked, plates, fixed, etc., this concept reflects social discipline waste separation management or managing waste from the beginning by making it clear which waste is household waste, food waste and what is recycled plastic. Which one is the waste due to medical waste that need to be managed in a systematic way.



Fig. 6-7 Using alternative containers in religious ways and activities to reduce the amount of waste of temples and monks in Thailand

2. Volunteer spirit responsible for the society as a whole is to see that the public is the key for us to help or provide assistance in order to make the waste not a burden or a problem for society as a whole. Therefore, it must start from inside your own home since reducing waste production even in the situation of COVID-19 must consume a lot the waste was brought to be used for bruising such as plastic bags or water bottles in case of medical waste, which means a mask. After using once and then discarded, it must be managed in a systematic way to prevent infection or prevent the spread of undesirable infections, etc.



Fig. 8-9 Systemic waste sorting before disposing under the framework of precepts, discipline and social responsibility for the temples participating in the project in Thailand

3. Religious morality means that religion teaches you to have awareness and responsibility to society as a whole including stimulating consciousness and social responsibility under the framework of possibility encourage and see the importance. In Thailand, the Sangha and the state have a policy to drive the religious dimension through the 5 Precepts Village project focusing on driving society through the concept of Buddhist precepts. Promoting careers, incomes, and being in the framework of social discipline. The Pracharath Building Happiness Project which is a continuation of the first project by using more than 40,000 temples across the country covering more than 40,000 communities, it has been a mechanism to drive religious ways. The goal for coexistence emphasizes community unity and quality of life and religious approach as a mechanism for driving religious guidelines. From this strength, if adapted to be a way of campaigning to promote community co-operation. This will cause people's power to manage waste, both household waste. Rubbish in the COVID-19 situation, medical waste and household waste are kept continuously safe, waste separation, and not accepting excess items. From ordering food only plastic straws, plastic

fixing plates that come with food in order the shop to reduce or refrain from accepting which will make it a part of waste reduction and waste management in the medical waste section which can affect the infection to be separated systematically store and pack separately to prevent the spread of germs, etc. It's all about the mind or the development of foundations within the framework of ethics to be responsible for society as a whole and at the same time is a matter of ethics to foster development and shared responsibility. In addition, the Buddhist concept does not look trash, but looking at the garbage in celebrities, there is a saying that "...Any of those who are not restrained in sensual pleasures not composed of dharma, not respecting the dharma, with prejudice because I put my attitude, Dosati, Mohagati, Bhayati, such a person, we call him the trash in the company. The enlightened monk has said this and..."[10] In its meaning, consciousness and responsibility respect Dharma practice according to the practice of being a Buddhist therefore it will be called a Buddhist. If you practice the opposite, it will be filth or excess in the name of the Buddha Company. The concept of Buddhism has the principle of thinking for the public, which is the service of benefit that have principles of discipline and precepts as a director and at the same time Buddhists must be a follower with respect including the Sangha and the State currently. There is a project (1) 5 Precepts Village that encourages people to have religious precepts, such as not oppressing others social discipline and far from drugs including unity in the community through various established activities that reflect the role of monks and society in many provinces such as Phra Nakhon Si Ayutthaya Province[11] and Samut Songkhram Province[12]. (2) The Pracharath Building Happiness Project is driven by the government and related sectors to promote people's quality of life in terms of occupation income and quality of life, such as community markets, temple markets. It is to promote quality of life and income for people at the foundation level holy day holy days and activities in the temple. The goal is to campaign and encourage people to practice religious principles and prayers as well. This approach can be written in a figure that affects the campaign to promote the reduction of waste through recycling non-plastic waste and medical waste management especially the mask in every household to be correct and appropriate.

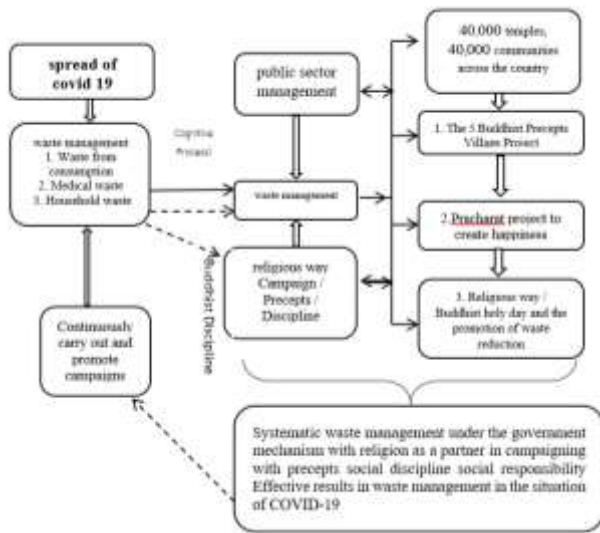


Fig. 10 Waste management mechanism that integrates Buddhist principles Religious organizations and governments that should arise in Thailand

From the figure 10 it can be explained that the state uses religious mechanisms as a tool to solve the problem of waste management together with temples, monks and Buddhists. both in the waste generated by consumption and medical waste which means a mask with the properties of temples scattered in more than 40 thousand communities, 40,000 communities of Thailand in total (Statistics for Thailand). There are 76 provinces, 878 districts, 7,255 sub-districts, 75,032 villages, 66,186,727 inhabitants throughout the Kingdom, 32,375,532 males and 33,811,195 females. (National Statistical Office, 2020). Concept of Volunteering and Social Responsibility and campaigning through temples to pass on to the community and using a project method that the temple and the state jointly operate, which consists of (1) the 5 Precepts Village Project that uses precepts as a campaigning mechanism to encourage people to practice with the goal of promoting people's harmony with social discipline. with the COVID-19 situation. There have also been interventions on waste management to reduce the amount of waste. (2) the Pracharath Temple project creates happiness, which is a project supported by the state. so that temples and monks can work for society and the public The joint condition is campaigning on waste management from the COVID-19 situation and medical waste. It will be managed and stored in a systematic manner as well.

V. CONCLUSION

Waste management in the situation of the COVID-19 epidemic is something to be aware of. about the impact of an unusual increase in waste under unusual circumstances of the

COVID-19 situation especially the waste from consumption and medical waste that refers to masks. This makes all government agencies, religions, temples, monks and the public have to realize and give importance to each other to campaign to promote the drive towards reducing the amount of waste in all forms systematic waste management both in the state that has to formulate policies. Clear measures to achieve practical results On the part of religious organizations which are in all sectors of the people. It was emphasized to promote self-service for the benefit of waste management as well as promoting practical results through the 5 Precepts Village Project, the Pracharath Temple Project, Creating Happiness. More than 40,000 temples across the country scattered in communities across the country as a campaign mechanism to promote under the religious way and religious concepts including volunteer spirit, sacrifice, and service for the society. As a whole by taking part in waste management, which is believed to be one way to help reduce the amount of waste, caused by the current COVID-19 situation that is not yet finalized.

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Development the Quality of Educational Achievement the Small schools has Low Ordinary National Educational Test by using Professional Learning Community

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Abstract— *The objective of this research was; to study best practice in small school management under the Office of the Basic Education Commission, to explore the small school development model, and to study the results of the using the small school development model by using professional learning community in mathematics and sciences subjects. The research was divided into 3 phases: Step 1: Study the best practices in small school management. The sample were a small school with O-NET test higher than the national average O-NET test in academic year 2018. Step 2: Finding the small school development model by focus group were organized between education administrators, school administrators and teachers. And Step 3: Study on the effects of small school development model by using professional learning community. The samples were 3 small schools which O-NET test in mathematics and sciences subjects below the national average O-NET test. The data were analyzed by mean, standard deviation, t-test, and content analysis. The results of the research showed that 1) best practice in small school management consisted of learning management that allows teachers to be fully self-developed and students enjoyed learning, 2) small school development models consisted of goal, planning, action, observation, reflection, and strengthening, and 3) the results of using the small school development model by using professional learning community were found that the students had achievement in mathematics and sciences subjects statistically higher than 70% at the .05 level. They had attitude towards mathematics and sciences, and teamwork in high level. From the follow-up, it was found that in the academic year 2019, two out of the three schools in the sample school had higher O-NET test scores than the national average*

Keywords— *Best Practices, Small School, Academic Achievements, Attitude Towards Mathematics and Sciences, Teamwork*

I. INTRODUCTION

In the national education management according to the Constitution of the Kingdom of Thailand in 1997, the National Education Act 1999 and the Amendment (No. 2) 2002, there were ideologies and principles of education management to develop Thai society into a knowledge society and to provide all Thais with equal educational opportunities and continuous human development throughout their lives, which will lead to a desirable knowledge-based economy. In this regard, education management guidelines had been set to be a learner-centered learning process. Learners would see a role model with practice, thinking and learning through a variety of hands-on experiences and needs; they would be happy to learn. As for the teachers, they could get to know the learners individually with the preparation of teaching and the use of media that combine international knowledge with Thai

wisdom, setting up an atmosphere conducive to learning, providing and developing various learning resources and developing learners' thinking in a systematic and creative way. The success of the learning process depended on individual factors including teachers, faculty members, administrators, parents and community members. Management factors include management principles and principles of good governance. An indicator of desirable characteristics of Thai people was the provision of a learning curriculum and an environment that encourages learners to develop themselves naturally and to their full potential. There was a systematic and quality development of administrators, teachers, faculty members and educational personnel. There was also an educational institution-based management [9]. The goal of 2018 was to systematically reform education and learning. Emphasize three main issues: the development of quality and standards of education and learning of Thai people, increasing educational and learning opportunities,

and promoting participation in education administration and management from all sectors of society. The strategic reform framework has focused on the international quality and standards of Thai people and Thai education. Some of the key indicators and target values were academic achievement in core subjects from the Ordinary National Educational Test (O-NET), with an average score of more than 50 percent and the mathematics and science achievement was not lower than the international average (PISA test results) [8].

According to the National Institute of Educational Testing Service (Public Organization) in the 2018 academic year, it was found that the national average scores in mathematics and science were 37.50 and 39.93, respectively [5]. The schools under the Kamphaengphet Primary Educational Service Area Office had an average score lower than the national average score in Mathematics and Science of 262 schools and 248 schools out of 386 schools, respectively. The results reflected that many schools needed urgent help. The researcher as a tertiary faculty who has one of the main functions of the university's mission, that is to provide academic service to schools in the service area through the development of teachers and educational personnel was therefore interested in developing primary schools, especially small schools, to have higher than the national average level of national educational testing results. Best practice lessons were removed from small schools that had higher than the Ordinary National Educational Test (O-NET) scores. Best practice lessons were removed from small schools with an Ordinary National Educational Test (O-NET) score higher than the national average in management, curriculum, learning processes, and learner development activities. The small school development model was used to achieve an Ordinary National Educational Test (O-NET) score higher than the national average by using the professional learning community. The model was then used to develop a small school to score an Ordinary National Educational Test (O-NET) higher than the national average using the professional learning community. This was in order for the administrators to change the working process and the teachers to adjust the teaching and learning process and bring the school to a better standard.

II. RESEARCH OBJECTIVES

1. To study best practices in small school management under the Office of the Basic Education Commission, Kamphaengphet province.
2. To find a model for small school development based on the professional learning community.
3. To study the results of the using the small school development model by using professional learning community

III. RESEARCH METHODS

Educational quality improvement was carried out to improve the learning achievement of small schools with low Ordinary National Educational Test (O-NET) scores using the professional learning community which was divided into 3 steps as follows:

Step 1: Study the best practices in small school management.

The sample group was a small school under the Office of the Basic Education Commission, Kamphaengphet province with the Ordinary National Educational Test (O-NET) score in Mathematics and Science that was higher than the national average in the 2018 academic year. It was purposive sampling in Mathematics subject which was Ban Nong Chang Ngam school and Thung Sai Kindergarten school, and in Science subjects including Thai Rath Wittaya school and Thung Sai Kindergarten school.

Informants were school director or representative and teacher. Sources of information were school self-report documents, projects related to teacher development, teaching and learning process development, and learner development.

Research tools included:

1. The executive interview form was a question related to operations in terms of personnel, budget, equipment and management.
2. The teacher interview form was a question related to self-development, teaching preparation, teaching and learning, assignments and examinations, student assessments, and assistance to students who did not understand the content.
3. The school performance report was related to the organization of projects and activities related to teacher development, teaching and learning process development, and learner development.

Data collection

1. Interview with the school director or representative (in case the school was waiting for the administrator to take the position of director) and the sample school teachers of the 3 schools.
2. Document analysis: projects and activities related to teacher development, teaching and learning process development, and learner development.
3. Summarizing the information from the interview and returning the information to each school for further investigation and complete review.
4. Summarizing the information and establishing best practice in the management of small schools.

Data analysis

Content analysis was used to analyze data from interviews with administrators and teachers together with documents and group them to establish best practice in small school management.

Step 2: Finding a pattern to develop a small school using the professional learning community.

The informants were divided into 3 groups:

1. Director of educational districts, deputy director of educational districts, educational supervisor of a small school and educational supervisors responsible for the subject of Mathematics and Science learning, performing duties in Kamphaengphet province, 5 people.
2. School director, teacher in Mathematics and Science subjects who work in small schools, which had the Ordinary National Educational Test (O-NET) score higher than the national average in the 2018 academic year, 5 people.
3. School Director, teachers in Mathematics and Science subjects working in small schools with Ordinary National Educational Test (O-NET) scores below the national average in the 2018 academic year and study the effect of small school development model using the professional learning community, 7 people.

Research tools included small school management best practices, small school development drafts and group discussions:

1. Best practice in small school management was the result of a study in Step 1: Administration, including personnel, support and administration. Learning management consists of curriculum activities and extracurricular activities.
2. A draft of the small school development in the process of showing an overview of the operation would consist of goal, plan, act, observe, reflect and strengthening.

Data collection was done using a focus group to present best practice in small school management as a result of the study in Step 1. A draft of the small school development consisted of goal, plan, act, observe, reflect and strengthening among the three contributors.

The analysis of the data was summarized on the pattern of small school development from the focus group and analyzed using the results of content analysis.

Step 3: Study of results of using a small school development model using the professional learning community.

The sample consisted of small schools with the Ordinary National Educational Test (O-NET) Mathematics and Science scores lower than the national average in the 2018 academic year and was in the top 10 of Kamphaengphet province. The purposive sampling method was used. The schools that were willing to join as a sample in this study were Ban Thung Suan school, Nong Bua Rat Bamrung school and

Ban Nong Takla school. The participated in finding a small school development model in step 2.

Research tools were a small school development model using a learning community. There was a 6-step process:

1. Goal was a combination of goals for improving the quality of education in Mathematics and Science. The sample school aimed to develop students in Grade 6 to score the Ordinary National Educational Test (O-NET) in Mathematics and Science subjects higher than the previous year. If possible, they would like it to be higher than the regional, provincial or national average. In this regard, the roles of administrators, teachers and learners had been assigned.

2. Planning was a joint preparation and finding methods for learner development, as well as defining the scope of content in mathematics and science in accordance with the learning content, learner quality, and indicators used in the Ordinary National Educational Test (O-NET) academic year 2019. They defined the learning behavior of learners, such as learning achievement, attitudes, and teamwork, along with guidelines for developing a learning management plan that emphasizes the learners' practice. Learning activities were carried out in 7 steps: preparation, individual learning, group learning, exchanging learning, summarize, practicing skills, and appreciation, as well as designing teaching materials and materials in accordance with learning.

3. Action was a joint study of content according to the core curriculum, making a learning management plan, media / equipment and instructors, learning management in accordance with the plan along with recording learning results each time to improve the learning management plan. The learning management plan was divided into 40 hours per subject. The achievement test that corresponds to the learning standards used in the O-NET exam would be divided into 20 items per subject. The attitude toward Mathematics and Science was a measure of the opinions or feelings of learners towards learning management of Mathematics and Science with the content validity between 0.67 - 1.00 and reliability values of 0.88 and 0.86 respectively. The teamwork was a measure of the opinions or practice of learners in terms of working with peers in Mathematics and Science school hours with the content validity between 0.67 - 1.00 and reliability value of 0.89.

4. Observation was a co-consideration of learners' learning outcomes in terms of knowledge, skills and desirable characteristics from the learning activities results according to the learning management plan.

5. Reflection was co-consideration based on the effect of learning management on content that the learners did not yet understand and then find a way or method of learning

management in order to give the learners a better understanding.

6. Strengthening was a joint activity to enrich knowledge of learners as a result of reflecting the concept of the learning management plan in what the learners did not yet understand and considering the scores from the achievement test, the attitude test, and the teamwork scale.

Data collection and analysis could be performed in accordance with the small school development model by using the professional learning community as follows.

1. Focus group between administrators, teachers of Mathematics and Science, sample schools, and researchers in the process of goal, planning, observation and reflection in the professional learning community process. The data was analyzed using content analysis.

2. Action was a learning activity to develop learners according to plan. Strengthening was a joint activity to enrich learners' knowledge and then ask students to take an achievement test, an attitude toward Mathematics and Science, and the questionnaire about teamwork. The Mathematics and Science achievement were compared with the 70% criterion and analyzed using t-test one sample and attitudes towards Mathematics and Science, and teamwork were analyzed using mean and standard deviation.

IV. RESEARCH RESULTS

1. The best practices in small school management including:

1.1 For administration, consisting of personnel, teaching support and the management found the following results:

1) Personnel, which are persons involved in learner development activities, consists of;

- Executives, act to take care, consult, supervise and follow up the work, encourage teachers and students, encourage teachers to develop themselves, assign tasks to accountability according to aptitude and suitability, create a happy learning atmosphere, and build confidence and morale in work.

- Teachers, have an important behavior that is devoted to students, responsible for teaching and other duties as appropriate, develop themselves by learning from DLTV and studying further from the Internet.

- Students, should have key characteristics: literacy, fluency, computer skills, discipline and responsibility.

2) Two aspects of teaching support: Distance Learning Management System (DLTV), computers and Internet access for information searching, and teacher manuals since teachers do not meet the courses taught.

3) For the administrative, the academic affairs department arranges class schedules according to the DLTV teaching schedule, and additional arrangements with an emphasis on core subjects and sub-subjects that the core subjects are

subjects that must do O-NET exam by completing the content according to the curriculum. After the O-NET exam, study the secondary subjects or the subjects that must be completed classroom arrangement of either.

1.2 Learning management consists of activities according to the curriculum. And extra-curricular activities found the results as follows;

1) Activities according to the curriculum, include individual learner analysis, adjusting the basis of prior knowledge, teachers study indicators, content to be taught, analyze exams for teaching information, and find teaching techniques and materials that help learners' interest and enjoyment such as using games and using technology in teaching. Before starting new content, ensure that all learners understand the original content. Assign 2 questions of math as homework per day. In the case of students who make mistakes, they are asked to teach more individually. Measurement and evaluation section consider from worksheets, exams, assignment behavior, and study interests.

2) Extra curriculum activities include teaching after the content has been completed by doing exemplary exercises in the past year and taking place on Saturday or Sunday, joined the project with the school group to send students to review their knowledge and practice doing problem solving.

2. The small school development model was an educational quality improvement procedure to improve the academic achievement of small schools has low Ordinary National Education Test (O-NET) by using a professional learning community, the process as follows;

2.1 Goal was setting a target to improving the quality of education for small schools to achieve the results of the Ordinary National Education Test (O-NET) in Mathematics and Science subjects in grade 6 are higher than the previous year. And if possible, the scores should be higher than the national average score. Including setting the roles of administrators, teachers, and learners.

2.2 Planning was to preparation and find a method for learner development, defining the scope of content in the Mathematics and Science courses in accordance with the subject matter, learning standards, learner quality, and indicators that used in the Ordinary National Educational Test (O-NET) in academic year 2019. Determine the learning behavior of the learners and guidelines for developing a lesson plan which focuses on active learning along with designing media and teaching materials.

2.3 Action was joint study of content according to the core curriculum. Preparing lesson plans, media and teaching materials. Then the instructors to manage learning according to the lesson plan and recorded the learning results in each time to improve the lesson plan. In the process of organizing

learning activities, it is applied from best practice which consists of 7 steps: preparation, individual learning, group learning, exchanging learning, summarize, practicing skills, and appreciation.

2.4 Observation was assess the learning behavior of learners including learning achievement, teamwork, and attitude.

2.5 Reflection was to consider the results of the learning management each week a management about the lesson plan, media and teaching materials, and learning activities.

2.6 Strengthening was an activity to enrich knowledge to the learners which was the result of reflection according to the lesson plan that the learners do not understand.

3. The results of the using the small school development model by using professional learning community focus on learning behavior of the learners as a follow,

3.1 Achievement; consist of Mathematics achievement and Science achievement shown in Table I

Table I Comparing Mathematics achievement and Science achievement with 70% of the criteria after using the small school development model.

achievement	n	μ	\bar{X}	S.D.	t	Sig.
Mathematics	27	14	15.37	2.95	2.414	.023
Sciences	27	14	15.48	2.58	2.987	.006

$p < .05$

3.2 Attitude; consist of attitude toward Mathematics and attitude toward Science shown in Table II and Table III

Table II Mean (\bar{X}) and standard deviation (S.D.) of attitude toward Mathematics after using a small school development model

attitude toward Mathematics	\bar{X}	S.D.	meaning
1. Mathematics is a useful subject	4.63	0.49	highest
2. Solving Mathematics problems helps to think systematically	4.44	0.64	high
3. Mathematics can be used in everyday life	4.56	0.75	highest
4. Students are happy to study mathematics	4.04	0.65	high
5. Students love to do activities related to mathematics	4.07	0.68	high
6. Students have fun in math class	4.07	0.73	high
7. Students explain mathematics content to their peers	3.93	0.73	high
8. Students do math exercises on their own	3.89	0.42	high
9. Students participate in activities related to mathematics	4.19	0.74	high
10. Students are researching to learn more about Mathematics	3.96	0.71	high
total	4.18	0.70	high

Table III Mean (\bar{X}) and standard deviation (S.D.) of attitude toward Science after using a small school development model

attitude toward Science	\bar{X}	S.D.	meaning
1. Science is a useful subject	4.76	0.44	highest
2. Students like activities related to Science	4.44	0.77	high
3. Students love to play games that are related to Science	4.52	0.77	highest
4. Students do their own science homework	4.32	0.90	high
5. Students are always enthusiastic about studying or doing science activities	4.32	0.75	high
6. Students are enjoyed studying science	4.48	0.77	high
7. Studying science helps train people to think systematically	4.44	0.71	high
8. If students do not understand the content of science, you will ask the teacher	4.28	0.89	high
9. Science subjects to help develop thinking	4.36	0.81	high
10. Science can be applied in everyday life	4.52	0.77	highest
total	4.44	0.76	high

3.3) Teamwork; consist of teamwork after learning Mathematics and Science subjects, shown in Table IV

Table IV Mean (\bar{X}) and standard deviation (S.D.) teamwork of Mathematics and Science after using a small school development model

teamwork	Math		Science	
	\bar{X} S.D.	meaning	\bar{X} S.D.	meaning
1. I am happy to join and work without request	4.48 0.51	high	4.60 0.58	highest
2. Group members explained their work clearly and everyone understood	3.77 0.51	high	3.96 0.98	high
3. Group members talked without emotion	4.31 0.47	high	4.32 0.80	high
4. I accept the opinions of group members	4.35 0.56	high	4.24 0.88	high
5. Group members understand that I describe or express their opinions on the work	4.12 0.59	high	3.88 0.88	high
6. While working together I discuss and exchange ideas with members of the group	4.23 0.59	high	4.00 1.08	high
7. I expressed my opinion with a cheerful smile	4.31 0.62	high	4.20 0.82	high
8. I raise questions about working with	4.27	high	4.20	high

members of the group	0.67		0.96	
9. I believe that all members of the group can work towards their goals	4.04	high	4.32	high
	0.34		0.75	
10. Group members are free to voice their opinions and take action	4.73	highest	4.44	high
	0.60		0.77	
11. All group members are essential to accomplishing our goal	4.04	high	4.28	high
	0.82		0.84	
12. Group members discussed each other on a logical basis in working to achieve goals	4.54	highest	4.20	high
	0.51		0.82	
13. All group members willingly accept the results of their work	4.48	high	4.40	high
	0.51		0.76	
total	4.27	high	4.23	high
	0.61		0.85	

V. DISCUSSIONS

1. Best practice for managing small schools was divided into two areas: 1.1) Administration - personnel consisted of administrators, teachers and learners. Teaching support included Distance Learning Management System (DLTV), computers and internet access for information and teacher manuals. The administration was carried out by the Academic Department to schedule classes according to DLTV's teaching schedule and the administrators or teachers must set clear goals for learner development. The results reflected that the school administration that leads to the success of its goals must be inclusive in personnel, as administrators or teachers are essential to lead the organization to success. In line with the research of, as in [12] and, as in [11] found that best practice in small school quality development, administrators should have effective management of personnel, budget and performance of their duties. It is also imperative to provide the necessary resources to support, especially distance learning, as teachers did not meet their educational background. This was consistent with the small school development strategy in terms of determining factors and conditions leading to school success, that is, promoting distance education via satellite as a tool for improving the quality of education [1]. The study of, as in [2] found that the strategy of future small school management (2013-2022), ICT should be systematically applied in the administration and management of teaching and learning. 1.2) Learning management included curriculum activities consisting of individual learner analysis, fundamentals adjustment, teacher indicators study, teaching content, and exam-related analysis. Extra-curricular activities consisted of a supplementary teaching after the completion of the content and the previous year's exam practice. The results reflected that in the management of learning, the teacher must be well prepared to teach and look after each student thoroughly in terms of knowledge and behavior. It is in line with the principles of learning management based on the 2008 Basic Education Core Curriculum that adheres to the principle that the learner

was the most important, learner-centered learning management and relying on a variety of learning processes. The instructor must study the school curriculum to clearly understand the learning standards, indicators and key competencies of the learners, with the preparation and selection of media appropriate for the activity including assessing the progress of learners using a variety of methods [4]. The research of, as in [12] found that best practice in improving the quality of small schools consisted of learner development activities. Educational institutions should organize activities to encourage learners to think, do, and organize activities to promote learning achievement for them. 2. The small school development model was a step that provides an overview of difficult operations at the level of academic achievement including goal, planning, action, observation, reflection, and strengthening. The process was a community style that focused on solving problems through better practice [10]. Such elements or procedures were consistent with the concept of organizing a learning community at the educational institution level [3], [13] showed that as a learning community, the school can truly develop the learning aspects of the learners. Collaborations focused on learner learning, professional learning and development, and a friendly community demonstrate the synergy of administrators, teachers and educators directed towards stakeholders. 3. To study the results of the using the small school development model by using professional learning community. Considering the effect on learners, teachers and administrators, it was found that 1) The students had academic achievement in Mathematics and Science statistically higher than 70% at the .05 level. In addition, they had a high level of attitude toward Mathematics and Science, and teamwork. 2) Teachers had increased knowledge and understanding of content and methods of managing Mathematics and Science learning. Even if the teacher did not complete the course, they enjoyed organizing learning with media / equipment and not feeling alone at work. 3) The administrators supported and encouraged them, along with asking questions arising from teaching and taking part in solving problems. In line with, as in [7] research found that the Learning Community process was used to help learners had significantly higher post-learning achievement and problem-solving skills at the .05. Moreover, there was an increase in knowledge sharing and exchanging of knowledge with peers and teachers. Research by, as in [6] found that the use of the learning community significantly increased the knowledge and understanding of the teacher's content at the .01 level and learning management design skills were at a high level.

VI. CONCLUSION

According to the study of best practice in small school management, the learners score the Ordinary National Educational Test (O-NET) on Mathematics and Science higher than the national average, finding a small school development model using the learning community and studying the effects of small school development using the learning community found that the learners had higher learning behaviors than 70 percent. In terms of work and attitudes were at a high level. From tracking the Ordinary National Educational Test (O-NET) score in the academic year 2019, it was found that 2 out of 3 schools had Mathematics and Science averages above the national average. A model for developing a small school using professional learning community was shown in Figure 1.



Figure 1. The model of development the quality of educational achievement the small school has low O-NET by PLC

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Organic Farming Career Group Management of Na Mai Sub-District Community, Lat Lum Kaeo District, Pathum Thani Province

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Abstract— This research had the following purposes: 1) to study the problems of operating circumstances of organic farming career group 2) to study the factors affecting management within organic farming career group and 3) to study direction of career group development. This research was employed Participatory Action Research (PAR). The data was collected by In-depth Interview, Group Discussion, SWOT Analysis, Farm Portfolio, Sufficiency Economy Philosophy (SEP), POLC Framework, Organizing Community Forum from key informants such as the community leaders, the chairman and the members of organic farming career group. The result founded that 1) In farmers factor, (1) some farmers lack of properly knowledge on organic farming such as land preparation, plants maintenance, (2) in term of group management, there was no joint activity, (3) In production process, the farmers had no planning on planting organic vegetables and fruits, they rarely knew good in price of seeds and organic fertilizers suppliers. Moreover, 2) factors affecting management within the group were (1) most of farmers had existing experience and readiness on land preparation for organic farming, good water resource, organic fertilizers, harvest, distribution channel, good opportunity to set up Klong Lak Khon Community Enterprises and gain supporting and promoting from government sector, (2) there was a systematic management, learning and innovative community. Furthermore, 3) the direction to developing group in order to reduce inequality in Social, Economic and Environment aspects by extending farmers' existing experience to increase their self-sufficient economy, using economical resources, various participation in group activities, and, finally, enable the farmers to sell their organic products to consumers

Keywords— Organic Farming, Group Management

I. INTRODUCTION

According to the National Organic Agriculture Development Strategy 2017-2021 of the Ministry of Agriculture and Cooperatives and the 12th National Economic and Social Development Plan (2017-2021), which is a mission under the Agricultural Economy Act 522, there has been a mobilization of opinions from stakeholders including government, private sector, civil society, farmers and educational institutions. This is in line with the 20-year National Strategy under the government policy and under the vision "There is advancement in agriculture with technology and innovation, the production is volume in line with the market demand, the livelihoods of farmers are of quality and agricultural resources are balanced and sustainable." It consists of strengthening farmers and farmers' institutions, enhancing efficiency, managing agricultural products throughout the supply chain, enhancing competitiveness through technology and innovation, balanced and sustainable management of

agricultural resources and the environment and the development of public management systems using the process of driving the plan into action through a policy-driven mechanism [1].

Agriculture in Pathum Thani Province is mostly chemical agriculture and some parts of the area are safe farming. From the survey of the area in the community of Na Mai Subdistrict, Lat Lum Kaeo District, Pathum Thani Province found that the community of Na Mai Sub-District is a semi-urban and semi-rural community consisting of 11 villages, namely Moo 1 Ban Khlong Tozen, Moo 2 Ban Khlong Lak Khon, Moo 3 Ban Khlong Ang Taek, Moo 4 Ban Khlong Ang Taek, Moo 5 Ban Khlong Na Mai Tatate, Moo 6 Ban Khlong Na Mai, Moo 7 Ban Khlong Na Mai, Moo 8 Ban Khlong Lat Chang, Moo 9 Ban Khlong Rahaeng Tai, Moo 10 Ban Khlong Rahaeng Tai and Moo 11 Ban Khlong Lak Kon Yai. The landscape is characterized by a plain with various canals covering the area such as Klong Na Mai, Khlong Rhaeng, Khlong Lak Khem, Khlong Lat Chang, Khlong Sam Wa, etc., resulting in fertile water suitable for cultivation. There is a total population of

13,686 people in the community. Most of the population is engaged in agriculture [2] and found that this is an area with long farming practices. Most of the people in the area are traditional, but some from outside the area have moved to this area. The community continues to preserve a way of life through horticulture, farming, cultivation and rice cultivation, where most of the chemical fertilizers are still used to produce large quantities of produce. However, few people try to use safer growing processes or reduce their use of chemicals, such as using self-composted manure and using plants to make natural chemicals to repel insects.

More than half of the 38.3 million workers are employed in agriculture and found that the situation of agro-chemical poisoning in 2017 had a morbidity rate of 16.81 per 100,000 population, an increase from 2016 (14.47 sickness rate per 100,000 population) [3]. Most of the patients were found in the working age group who were cultivating with various crops and vegetables. It was found that a very dangerous chemical that has been discontinued by foreign countries, such as Paraquat, to eliminate weeds. In 2013-2017, there were 502 cases of this herbicide exposure, and the trend is rising [4]. In the area of Tambon Na Mai, it is characterized by chemical farming. The planting and consumption processes are also contaminated, resulting in illnesses for the people of Na Mai and also found that these chemicals affect respiratory illnesses and cancer.

The community foresees the long-term disadvantage of chemical-fertilizing agriculture and therefore has an idea to transform the form of chemical agriculture to organic farming. Farmers in the Na Mai sub-district understand that organic farming is difficult to achieve. Moreover, the lack of assistance from government agencies to continuously promote and educate, therefore, there is no knowledge and confidence in initiating organic farming in the area seriously. The shift from chemical farming to organic farming reduces the risk of disease caused by agricultural chemicals and for a better quality of life in the community of Ban Na Mai [5].

Na Mai villagers gathered members in the sub-district who are interested in organic farming, which were Baan Phi Yak and Mhuai for growing Pathum rice, growing vegetable garden such as acacia pennata, chili, long bean, lemon, bergamot and other fruit. Ju's house cultivated chives, bitter melon, garland chrysanthemum, lettuce, bog choy, watercress, home-grown vegetable, etc. along with the burrow beekeeping, soil organic fertilizer and growing organic crops. Thanongsak's house cultivated lemons, pumpkins, coconuts and guava. Uncle Sommai's home cultivated mangoes, sapodilla, lime, neem, coriander and garland chrysanthemum. Orapin's house cultivated vegetable garden, neem and cassia. Anan's home cultivated home-grown vegetable, coriander, garland

chrysanthemum and lemons. The members' homes were interested in becoming a mainstay of organic farming startups. They started with their own home cultivation using a chemical-free growing process, using the soil in agriculture by making their own fertilizers, pest control using pyroligneous acid and various self-made pesticides. This startup would lead to the expansion of organic agricultural production in the community of Na Mai district. The products obtained from organic farming could create a cooperative self-certification system in the future [6]. The information mentioned above, it made the researchers focus on this matter.

II. RESEARCH OBJECTIVES

The objectives of this research article were 1) to study the operational problems of the organic farming career group 2) to study factors contributing to management within the organic farming career group and 3) to study the direction for the development of the organic farming career group

III. LITERATURE REVIEW

The management of the organic farming career group with the participation of its members followed a model of the sufficiency economy philosophy, beginning with studies in the context of organic farming community, group management and participation.

[7] The Department of Agriculture (2009) has defined organic agriculture as a holistic agricultural production management system that supports ecosystems, including biodiversity and biological cycle. The main methods focus on the use of natural materials, avoiding the use of synthetic raw materials, and the use of plants, animals or microorganisms derived from genetically modified techniques. It can be seen that organic agriculture is a matter of standard certification and alternative trade. Farmers' proclamations and declarations and their objections to the Chemical Agriculture line are also sufficient evidence to verify that it is truly organic, without any validation and certification. If there is an inspection, it is simply an informal visit to each other by the member farmers, or a simple code of conduct may be developed to guide members in organic farming. This is because the organic farming group in this era was only a small group of farmers and had direct marketing links with consumers without the need to sell their produce.

In addition, the system of organic agriculture can be considered as a production system that takes into account the environment and the balance of nature and biodiversity. There is an ecological management system similar to nature and avoiding the use of synthetic substances such as chemical fertilizers, pesticides and hormones as well as the absence of genetically modified plants or animals which may affect

environmental pollution. Instead, it emphasizes the use of organic matter such as manure, compost, green manure and bio-fertilizers to improve fertility so that plants are strong and able to resist disease and pests on their own. Local wisdom is used to make the products safe from toxic residues for both producers and consumers and not degrade the environment as well [8].

Organic farming in Thailand had been around for a long time since the primeval times, but it was not very widespread. Later, there was a sequence of agricultural developments. Initially, since 1889, agricultural organizations and NGOs had developed alternative agriculture networks to foster sustainable development, such as monoculture or chemical agriculture, making farmers rely on various external factors including chemical fertilizers, pesticides and animal drugs. As a result, farmers were in debt and deteriorating health, problems of chemical residues in the environment, imbalances in minerals and soil physical characteristics and agricultural products. Organic agriculture was an alternative to non-chemical agriculture. Farming that emphasized the use of compost, manure and natural materials contributed to a natural balance, environmental conservation and restoration as well as keeping the quality of the produce as natural as possible.

(1) Group management [9] The definition of the group and the principles of group management, including the factors affecting group management as follows: Group was defined as two or more people with mutual communication and influence for the conduct of activities of a common purpose. By this definition, groups were different from the combination of groups of people. [10] "Strong community-based process management was promoted in terms of integration, learning, collaboration, co-operation, and practice including support for well-formed groups, emphasizing the availability of communities and linking them to making a living at all levels. Communities should take into account moderation and self-sufficiency, linkage with external communities and societies, a step-by-step process of knowledge management, and learning networks within and outside the community. Here were some interesting principles: 1) Promoting community gatherings for activities in the benefit of the community in a variety of formal and informal ways, either on a spatial or in point of interest. 2) Comprehensive management of knowledge and learning systems of the community, starting with the community database development to be a system and to keep it up-to-date. 3) Empowering communities to prepare for future changes by promoting family stability, building stability of the community economy by balancing the integration of the production process on the basis of the community's potential

and strength which is an emphasis on production for sufficient consumption within the community including promoting the role of women in driving the community economy and leading to the solution of poverty. This was done by 1) Encourage communities to have various forms of integration. 2) Campaign and promote the manufacturing and service sectors. 3) Promote joint investment between networks of community organizations and local government organizations. 4) Support the application of Thai wisdom and local culture to create value of products and services in order to create wider market opportunities. 5) Develop an incubation system for community enterprises to grow together with creating new entrepreneurs in terms of developing knowledge in management and marketing along with the knowledge of the production of unique products. Strengthening the capacity of communities to coexist with natural resources and the environment in a peaceful and complementary manner, was carried out by promoting the aspects of community rights and community participation processes in terms of conservation, restoration, development and utilization. Local environmental and natural resource management efficiency was enhanced by raising awareness of the community in terms of the value of resources, supporting community mechanisms and networks for the management and protection of natural resources and the environment linked to production. This was for the sustenance of the community fairly and to strengthen the capacity and knowledge of the local government organization in the management of natural resources and the environment to be a key partner in the conservation, rehabilitation and management of natural resources and the environment, in cooperation with the communities and related network partners. [11] said organic agriculture was a tool to strengthen the community economy. The group's operations included situational analysis learning with solutions to partnerships. Knowledge networks, marketing and production were essential elements in driving organic agriculture towards its goals and effectively transforming the economy, the environment and the well-being of the community. The results of the local research were found that the group process and network were a guideline for the development of farmers to have more learning because having like-minded peers allows group members to have consultations, discussions and exchanges on technical learning and organic farming methods. In addition, knowledge was shared with each other and gives importance to the creation of an organic agricultural system that was conducive to survival. There were group rules for organizing a systematic process and setting up a committee to manage the group in terms of buyers, marketers and capital management systems. [12] said the model of a

suitable agricultural garden referred to a collective agricultural garden that the people in the community do together, which was a tool to connect people in the community. 13 villagers who had invaded the area for more than 10 years had returned the area to the community. Experimenting in agricultural gardening activities showed concrete structures and products, thus causing more villagers to join in the activities. The aim of this farm was to provide a safe food production for the people in the community, a 3-age activity center, an organic farming learning center, a student volunteer action center, and a community agricultural tourism site. It was also the development of community economic activities of various groups such as organic agricultural products group, cooperative groups and community shops, elderly groups, young agricultural groups to earn income, integration of community enterprises that leads to savings for housing and outreach to households in the community in the form of fence gardening, balcony vegetables and vegetable mobile, etc. The results of the research for the local area showed that there was unity and good relationship among the people in the community from participating in community agricultural plantation activities in terms of individual potential, community researchers develop cause-critical thinking and thought extension as a result of the project's experimental activities, for example, brainstorming and analysis on the cost reduction of various activities such as building a mushroom house where villagers helped to find resources that come together to build. In addition, resources in the community had been developed in a better way in terms of developing the garbage dump area to become a green area of the community.

(2) Participation [13] Cohen & Uphoff discusses four types of engagement: (2.1) Decision Making was the determination of needs and priorities, and then selected the policies and citizens involved in the early decision-making. Decision Making allowed planning and decision making during planned implementation. (2.2) Implementation was derived from the question: "Who can benefit the project and how they can do it, such as resource support, administration, coordination and assistance?" (2.3) Benefit considered the distribution of interests within the group in terms of both the positive benefits and the negative consequences of the project on the individual in society. (2.4) For evaluation, it was important to note that comments, preferences and expectations could influence changes in the behavior of individuals in the group. [14] From the research of sustainable development policies and achievements in the context of the agriculture sector in Thailand was revealed that Thailand began to pay attention to sustainable agricultural development policy starting in the early 1990s. However, it was only after

the adoption of the philosophy of 'sufficiency economy' as the main sustainable development policy agendum that the country began to move seriously towards sustainable agriculture development. In this regard, several policy instruments were introduced, including crop diversification, reduced use of inorganic fertilizers and pesticides, and promotion of organic agriculture and healthy food.

The focus here is on organic farming, and particularly its relationship with the concept of sustainability. There are a number of reasons for this emphasis. The first is that organic farming pre-dates all other approaches to "environmentally-friendly" agriculture [15]. Second, it is a rapidly developing agricultural sector in many countries, as the figures cited above for the EU and North America indicated. The reasons for this expansion are numerous and there are variations across countries. Consumer interest has grown in response to repeated food safety scares, animal welfare concerns as well as more general concerns regarding the impact of industrial agriculture on the environment. Producers have also been attracted because of environmental concerns as well as by the potential health impacts of using agrochemicals and, as is discussed in Section 3, by the economics of organic production relative to conventional agriculture. This latter factor has been affected by the fact that many governments, including that of the UK [16] are encouraging more producers to adopt organic techniques. [17] [18] Organic Farmer Networks: Facilitating Learning and Innovation for Sustainable Agriculture examines the role of organic farmer networks in facilitating farmer innovations in complex agro-ecological farming systems through a study of a sample of organic farmers in the northeastern tier of New York State. Building on a knowledge systems and social learning perspective, it illustrates how learning is triggered and agricultural innovations diffused among a broader community of sustainable producers through an interactive, participatory style of problem solving. Finally, the paper links farmers' social learning processes to extension through a critical reflection on the potential niches in organic farmer management for extension practice.

[19] Bartol & Martin said management was the process of doing things in order to achieve an organization's objectives. There were four main activities: 1) planning 2) organize 3) leading and 4) control.



Fig. 1 POLC Model

From Fig. 1 can be explained that Plan (P) refers to operations on the basis of business operations. Business objectives and organizational policies have been established to assist management, guide implementation and help businesses achieve their goals including the preparation of costs and operations. Planning was used by managers at all levels who work in the organization.

Organize (O) means organizing an organization related to the administrative structure starting from the highest level to the lowest level. The nature of the organizational structure indicates the hierarchical delegation of authority and function. The transmission of information takes place from the highest level down to the lower level and the order of duty.

Leading (L) means good planning. Good organization may not be enough, and they need the cooperation of organizational personnel to perform effectively along with relying on the impulse from the supervisor or the use of recommendations as a guideline for action.

Control (O) is the final function of administration. Control is essential to any administrative activity such as production, sales, personnel selection, public relations, legal activities, financial planning, and so on.



Fig. 2 Self-Reliance is a community approach

From Fig. 2 can be explained to Self-Reliance is a community approach to addressing problems and has its own operational processes [20]. It is a matter of thinking ability, a view to collectively grasp issues and find solutions through joint decision-making of the community or community organization without focusing on competition or domination. Rather, it is a complementary aid [21] based on the traditional thinking system or the traditional wisdom of the community, as well as adhering to the holistic development under the various resources of the community. followed

Step 1: Learning by asking a question or a questioning process. This step would allow farmers to practice observing situations and phenomena until they become suspicious. Farmers were then asked to practice asking key questions, including guessing answers, by searching for knowledge from various sources and summarizing temporary answers.

Step 2: Learning and acquiring useful information. The design/ planning step was undertaken to collect data and information from various learning resources. It was an experiment step where farmers used Deduction Reasoning to design their data.

Step 3: Learning for building knowledge.

Farmers need to think of quantitative and qualitative analysis of data, interpreting the data in various formats or graphics, interpreting results to summarizing or creating explanations, all of which created a body of knowledge. The core of knowledge could be divided into categories: 1) facts 2) definitions 3) concepts 4) principles 5) rules 6) theory

Step 4: Learning for Communication.

This step was to present knowledge in a clear and accurate language and presents it both verbally and verbally.

Step 5: Learning to give back to society.

Students were trained to apply knowledge to the public or to realize the common good through group work, it also contributed to the creation of creative social problem solving, which may be knowledge and approach to creating innovative inventions with social responsibility and the expression of support and sharing for a sustainable society.

Thailand is driving national development towards the "Thailand 4.0" era, which emphasizes the development of "stability, wealth and sustainability through strengthening the country". It aims to transform the economy into an innovation-driven economy or Value-Based Economy by applying science, technology and innovation, transition from traditional agriculture to modern, organic agriculture with an emphasis on management and technology and being a farmer as an entrepreneur.

3. Innovation means doing things in new ways, and it can also mean a change in thinking, production, process or organization, whether it is revolutionary, radical change or further development. There is a clear distinction between invention, initiative and innovation, which means initiatives that can be applied successfully [22]. In many fields, innovation is believed to be a marked novelty, such as in arts, economics, economy and state policy. Economically, change is required to increase the value of the customer or the value of the producer. The aim of innovation is to make positive changes to make things change for the better. Innovation produces more productivity and is a major source of economic prosperity. Community innovation is the use of science, technology and innovation as a tool for creating and designing innovation to drive and develop communities. Research developments will lead to concrete application for solving local problems through cooperation between the public, private and public sectors.

While [23] said the role and importance of the sufficiency economy, considering the meaning of the sufficiency economy in the sense that sufficiency economy was a self-reliant economy based on one's own potential, strengthening mentally and being an economy that creates cooperation and solidarity within the same community. More importantly, it was an economy that could tackle poverty because people will have a comfortable living. The Sufficiency Economy Philosophy had also been hailed by the United Nations Economic and Social Commission [24] as a guide to empowering development and in line with Asian culture. This was because the Philosophy of Sufficiency Economy saw the value of people and the environment. In addition, the mechanism of the sufficiency economy philosophy promoted participation at all levels and links from individual, family, community to national levels. This would be a guide that led to the success goals of sustainable development.

In summary, "Sufficiency Economy" is important because it is a philosophy based on the foundation economic development, which is a key mechanism for the extension of a strong and self-reliant society. In the age of globalization, people must have situational knowledge, awareness, think and solve problems, be prudent, knowledgeable and virtuous.

IV. SCOPE OF RESARCH

The management of the organic agriculture career group was carried out according to the sufficiency economy philosophy with the participation of members. This began with a study of community context and community potential, and then analyzes community problems, learning and community innovation.

V. RESEARCH METHODS

A. Research Design

1. 1. Research scope

- 1) Contents include organic agriculture, management, participation, sufficiency economy philosophy and community innovation.
- 2) Research area is community Na Mai Subdistrict, Lat Lum Kaeo District, Pathum Thani Province.
- 3) Population

3.1) For the study population, the research team divided the population data into 2 groups:

Group 1: Farmers in Na Mai Subdistrict, Lat Lum Kaeo District, Pathum Thani Province

Group 2: Community leaders, local government administrators and relevant government agencies

3.2) Sample population

Group 1: Farmers in Na Mai Subdistrict, Lat Lum Kaeo District, Pathum Thani Province, 10 households

Group 2: 5 community leaders, local government administrators and related government agencies

2. Sampling method

Purposive sampling was used to select a group of organic farmers who are leading and interested in participating.

3. Tools

Research tools included In-depth Interview, Group Discussion, SWOT Analysis, Farm Portfolio, Sufficiency Economy Philosophy (SEP), POLC Framework and Organizing Community Forum in the context of the community, community potential, community issues, group management and learning and community innovation.

4. Data analysis

The qualitative analysis was based on content analysis using triangulation methods from informants relating to problem conditions, factors affecting group management, and group development direction.

B. Research Process

Research process of this research has developed into 9 steps



Fig. 3 Research Process

From Fig. 3 Research Process the conceptual framework, studies on organic farming career group management could be studied by 1) studying the community context, community potential, community problems, group management and learning and community innovation using In-depth Interview, Group Discussion, SWOT Analysis, Farm Portfolio, Sufficiency Economy Philosophy (SEP), POLC Framework and Organizing Community Forum based on the participation of members and the implementation of the Sufficiency Economy Philosophy. This resulted in a formal and established association with the registration for the establishment of the Ban Khlong Lak Khon Community Enterprise Group.

VI. RESULTS

The research results on organic agriculture career management consisted of operational problems of occupational groups, factors affecting intra-group management, and the direction of career group development as follows.

Table 1: shows the operational problems of occupational groups.

Problem	Solution
1. Knowledge 1) Lack of knowledge on organic agriculture of some farmers 2) Lack of knowledge exchange in organic farming	1. Knowledge 1) Promote and support farmers' knowledge on organic farming, such as fertilizers and pesticides, etc. 2) Organize a forum to exchange knowledge on organic farming
2. Group management 1) Lack of participation in the group of organic farmers 2) Lack of joint activities	2. Group management 1) Organize an exchange meeting according to the group structure and role 2) Organize practical training activities on organic fertilizer production and study visit.
3. Production process 1) lack of planning for organic fruit and vegetable production 2) Unknown sources for purchasing raw materials, making organic fertilizers, seeds at low cost	3. Production process 1) Plan for organic fruit and vegetable production 2) Provide source for raw material purchase, organic fertilizer making and low-cost seeds

Table 2: shows the potential of occupational groups.

Member	Performance
1. Anan	1) He is the chairman of the group, which possesses high leadership qualities, noted by the universal focus of members. 2) He specializes in growing organic vegetables such as coriander, garland chrysanthemum and scallions. 3) He is capable of making high quality organic fertilizers. 4) He has a distribution channel for organic produce. 5) He is a member of the Na Mai SAO and is well known to government agencies.
2. Orapii	1) She specializes in growing neem, cassia, and home-grown vegetable. 2) She has an expertise in plant nourishment and organic fertilization. 3) She is a village volunteer and a community volunteer that takes care of the health of her neighbors. 4) She has knowledge of organic products processing such as pickled bamboo shoots and cassia. 5) She is a member of Saggi Savings Group. 6) She has a distribution channel for organic product.
3. Ju	1) She has expertise in growing different varieties of bananas. 2) She has knowledge of organic fertilizers. 3) She has knowledge of organic products processing such as dried bananas, healthy drinks. 4) She is an inspector of organic farming plots in Pathumthani Province.
4. Noi	1) She specializes in growing guava, lemons and home-grown vegetables. 2) She specializes in organic produce such as stirred mango and fried bananas. 3) She has a distribution channel for organic produce.
5. Somjai	1) She specializes in growing guava and lemons. 2) She has a distribution channel for organic product.
6. Thanongsak	1) He specializes in growing guava varieties. 2) He has a distribution channel for organic produce. 3) He has bio-composting expertise.
7. La-ead	1) She specializes in growing different varieties of lemons. 2) She specializes in burrow beekeeping. 3) She has a distribution channel for organic product.
8. Phanason	1) He specializes in growing tomatoes, papaya and melon. 2) He has a distribution channel for organic product. 3) He has processing abilities such as salted

Member	Performance
	mango, Sajorium volubile tea.
9. Nok	1) He specializes in growing different varieties of lemons.
10. Sommai	1) She specializes in growing different varieties of mango and lemons. 2) She fertilizes the earthworms herself. 3) She made a drip system

Table 2: shows the potential of occupational groups.

Table 3: shows Group Management.

Management	Description
1. Plan	Meetings for understanding group formation, group structuring, and assignment of responsibilities such as chairman, vice chairman, finance, marketing and public relations with planning on group budgeting, perform their duties and responsibilities and administer the group's members.
2. Organize	The chairman coordinates and monitors the activities of the group members, advises them to the group, safeguarding the interests of members and assisting members in need.
3. Leading	Create a group account that is transparent by collecting income-expenses and informing members continuously.
4. Control	Members follow the rules of the group and regulate the member's production system to be organic.

From Table 2, it was found that most of the farmers had expertise in growing organic vegetables. Farmers' existing experience of planting and cultivating organic farming. Most of them had strong social networks at localities. High demands of export market and high opportunities in supporting from Central and Local Governments including private companies NGOs.

From Table 3, it was found that the group members were talking and formally integrated to create opportunities for assistance, promotion and support from the agency, government and group chair. It also discussed and consulted with academic researchers about the possibility of forming a community enterprise group. The academic researchers then contacted and coordinated with the Office of Agriculture, Lad Lum Kaeo District, along with clarifying the criteria for setting up a group consisting of at least 7 members of the community (not belonging to the same family and not in the same house registration), businesses related to the production of goods and services, activities that contribute to the development and help of solving the problems of the community, entities with the purpose of generating income, self-reliance and benefit of the community and activities that are not contrary to the law, public order and morals As mentioned above, the operator had prepared a document on the management of the farmers' groups of Na Mai Sub-district, which consisted 1) Grouping of villagers for organic farming 2) group relationship building 3) group

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formation and 4) Registration as a community enterprise. The details were as follows

1) Grouping of villagers for organic farming

The organic farming group took place when villagers realized the importance of health and found people in the community suffering from cancer caused by using chemicals. As a result, villagers in Moo 2,6 and 11, Na Mai Subdistrict, Lat Lum Kaeo District, Pathum Thani Province intend to change from using chemicals to be converted to organic agriculture. Members were allocated space to join the project from the initial number of only 7 households (9 persons) and increased to 10 households (17 persons). The villagers with nearly 100 percent of the membership showed their willingness to change the traditional farming model to chemical and safe farming because they took into account the health of themselves, their families and communities, most of them are elderly

2) Group relationship building

The members of the group shared their crops, vegetables and fruits, and agricultural knowledge makes the group bond and supported one another. This allowed group members to benefit and build more relationships. For example, Anan, who is the group's chairman, had established a relationship with the group by visiting the plots of members within the organic group. In the same way, members showed kindness by sharing their own fruits, vegetables and fertilizers with their fellow members at no cost.

3) Establishing a community enterprise group

Group members talked about a formal association to create opportunities for government assistance, promotion and support. The group chair spoke and consulted with academic researchers on the possibility of forming a community enterprise group. The academic researchers then contacted and coordinated with the Office of Agriculture, Lad Lum Kaeo District, along with clarifying the criteria for setting up a group consisting of at least 7 members of the community (not belonging to the same family and not in the same house registration), businesses related to the production of goods and services, activities that contribute to the development and help of solving the problems of the community, entities with the purpose of generating income, self-reliance and benefit of the community and activities that are not contrary to the law, public order and morals. The operation consisted of document 1) Form Sor Wor Chor. 01 (original) and member's ID card. Then, the chairman of the group collected the documents and submitted them to the community enterprise registration under the name "Organic Farming Community Enterprise in Klong Lak Khon Community". It took 2-3 weeks to get permission.

Table 4: shows farmers who follow the principles of the sufficiency economy philosophy.

Issue	Description
1.Modesty	Resources were used economically by fertilizing vegetable scraps, food litter and leaves.
2.Rationality	Organic fruit and vegetable growing groups sold their products to consumers, making group members and consumers safe.
3.Good self-immunity	Most of the members had comprehensive knowledge of organic farming.
4.Knowledge	Group members exchanged their knowledge and transferred them to each other and organized training activities to enhance their knowledge to the group members.
5.Virtue	The rules were set together in the sense that they would be honest with organic farming for themselves and their customers.

From Table 4, it was found that farmers followed the principles of Sufficiency Economy Philosophy, which consisted of 1) Modesty: Resources were utilized very economically and vegetable, food and leaf scraps were used to fertilize. 2) Rationality: A group of organic fruit and vegetable growers had brought their own products to the consumers, making them safe for group members and consumers. 3) Good Immunity: Most of the members had comprehensive knowledge of organic farming. 4) Knowledge: The members of the group exchanged their knowledge, transfer knowledge to each other, and organize training activities to increase knowledge to the group members. 5) Farmer's morality: A common set of rules was established in the sense that they would carry out organic farming honestly for themselves and their consumers, with a clear and auditable emphasis on financial transparency

Learning and community innovation

The group had learned about organic farming by 1) study for additional knowledge and continual application. 2) Open to new things that lead to the development of organic agriculture. 3) Gather fertilizer knowledge by interviewing individual members on fertilizing, hormones, pesticides to become a knowledge base for organic farming. 4) Learn to communicate with groups with a forum to exchange with each other and learn about online communication. 5) Give back to society.

VII. DISCUSSIONS

The results of the review 1) for problems in the operation of professional groups, it was found that some farmers whose knowledge of organic agriculture had not yet joined the group of organic farmers, lack of co-activity, lack of systematic planning for organic fruit and vegetable production, lack of cheap raw material purchases, organic fertilizers and low-cost seeds. Inappropriate perspectives towards long-term benefits

of organic products. Lack of capitals to pursue organic farming small-scale production, Poor market information and linkages. Besides, the strong influences of pesticides suppliers. The problem mentioned above, the farmers group had established a solution as follows: (1) Promote and support farmers' knowledge on organic farming, such as fertilizers and pesticides, etc. (2) Set up a forum to exchange knowledge. (3) hold meetings to exchange group structures and roles. (4) Organize practical training activities on organic fertilizer production and study visit. (5) Plan for organic fruit and vegetable production. (6) Provide a source for low-cost purchases of raw materials, organic fertilizers and seeds. In line with the work of [23] said the role and importance of the sufficiency economy in the sense that it was a self-sufficient economy based on its own potential, strengthening the psychological community and it was an economy that creates cooperation and unity within the same community. More importantly, it was an economy that helped to tackle poverty because the people were comfortable. In line with the research results of [11], it was found that group and network processes were developed for farmers to have more learning because friends with the same ideology could discuss, share stories, exchange techniques of organic farming and share knowledge with each other and focus on building an organic agricultural system that is conducive to survival. In this regard, group rules were established, organized work processes, and the establishment of a committee to manage the group in terms of buyers, market seekers and capital management systems.

2. In terms of factors contributing to management within occupational groups, it was found that there were strengths in the experience of organic farming and social networking. The group planned the operations and delegated duties and responsibilities. The president was the coordinator of the operations and monitoring the work of the members. There was a record of income-expenditure of the group. In line with research [25] it was found that the integration of the farmer groups was established by the implementation committee and the draft rules of the group. Each other's thoughts were two-way communication, which influenced the evaluation of the group's performance.
3. In the direction of the development of the occupation group, it was found that there was a full-fledged funding for the organic farming occupation group, Na Mai Subdistrict, Lat Lum Kaeo District, Pathum Thani Province and there was a social network of the group's operations: 1) take into account the social landscape 2) Analyze and find solutions to problems by yourself on a neutral basis. 3) Provide knowledge and understanding about economic philosophy. 4) Adhere to the principle of participation 5) Support important resources or inputs. 6) Cultivate awareness of helping and

sharing. This was consistent with the research of [26] found that both government agencies and the private sector have adopted royal initiatives as guidelines for action at the local level such as the Department of Community Development, Land Reform Office, Ministry of Agriculture and Cooperatives had built a model village of sufficiency economy, scholars, community enterprise groups, including the inheritance and exchange of agricultural knowledge. The result of this operation led to a community development approach based on the Sufficiency Economy Philosophy towards building a well-being society, that is, sufficiency in eating, using and being. There was focus on educating and understanding the sufficiency economy philosophy, cognitive skills training, as well as analysis and self-review. It also supported various inputs such as land, capital, seeds, and knowledge of agriculture. There was promotion of agricultural product development and processing as well as marketing promotion so that farmers could develop themselves sustainably. Importantly, there was a promotion and support for a well-being and mutual aid society, which was an important mechanism and contributed to the sustainable self-reliance of the community

VIII. RECOMMENDATIONS

A. Recommendations for Practices

1. The results showed that the community had the following weaknesses. 1) In the economy aspect, some families were found to be poor. Marketing management and community products were lacking in modernity, lack of identity, low cost and inadequate amenities to meet tourist needs. Moreover, they had high living costs, high debt, low agricultural productivity, high agricultural costs and high market competition. Therefore, agriculture should be developed by creating value from the application of innovation in agriculture. Our country aimed to create identity agriculture, safe agriculture, bio-agriculture, processed agriculture and smart agriculture in order to increase production efficiency in terms of both quality and product diversity including raising income, reducing expenditure and reducing risk factors in farming for farmers, as well as maintaining biodiversity and local wisdom as much as possible. 2) In the social aspect, it was found that the lifestyle of the people had not been able to catch up with the changes in technology and society. Therefore, the community should focus on technological innovation and further development in order to create new innovations all the time

B. Recommendations for Further Research

1. New technologies and innovations should be integrated in networked community marketing in order to upgrade network

and community marketing to marketing 4.0 and reach more niche customers.

2. The broad area should be studied by properly applying product and service innovations, process innovation and marketing innovation

IX. CONCLUSION

In conclusion, Organic farming career group management in Na Mai Subdistrict, Lat Lum Kaeo District, Pathum Thani Province was an operation under an informal occupation group, no concrete structure, no good management principles, no production planning and marketing plan. Therefore, there must be a meeting within the group to find solutions to the problems and determine the factors contributing to group management. As an action above, it was found that the group had organized an organizational structure and a set of rules and regulations, along with building knowledge and understanding of its members about this integration. The group's president was very selfless and talented in organic agriculture. Thus, he made the direction of group development to be efficient, funded for integrated agriculture and to build social networks that operate in line with the Sufficiency Economy Philosophy.

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Guidelines for Promoting People's Participation in The Local Development Plan of Pa Phai Sub-District Municipality, San Sai District, Chiang Mai Province

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Abstract— This research aimed to study the level of people participation, problems and obstacles and recommendations in the development plan of Pa Phai Sub-district Municipality, San Sai district, Chiang Mai Province. The sample population consists of 400 people, and this research was carried out with a qualitative method. Questionnaires and observations were used as tools for data collection and were analyzed using the SPSS program to process statistical values such as percentage, mean and standard deviation. The result of this research found out that, the level of people participating in the local development plan of Pa Phai Subdistrict Municipality shows that overall, it was at a moderate level. Problems and obstacles that arose, were because of the people who lack knowledge and understanding about their rights, roles and duties. The administrators give people the opportunity to participate in every step, causing some lack of publicity and good coordination. The level of people's participation in the preparation of the local development plan of Pa Phai Subdistrict Municipality Overall, the average level of the problems caused by the lack of knowledge and understanding about the roles and responsibilities of the executive and the opportunity to citizens to participate at all stages less lack of publicity and coordination that has questions. Therefore, based on the result from this research we recommend thorough publicity and dissemination of information regularly to the public. The administrators expressed sincerity and gave the people an opportunity to participate in every step including explaining or clarifying for the people to see the importance of real participation in developing local development plans.

Keywords— Promotion Guidelines, People Participation, Local Development Plan

I. INTRODUCTION

The organization that plays an important role in the development of democracy of Thai society is the Sub-District Administrative Organization because it is responsible for local development in terms of economic, social and cultural aspects, and also organize some activities in the sub-district area, for advancement. However, each local government organization has the potential and readiness for community development differently based on many factors, such as readiness of the people, community organizations must be alert and active and there must be some movements from the organization to enable them to govern themselves and most importantly, Sub-district Administrative Organization will the

administrative mechanism of the management in the district. To truly protect the interests of the people, But nowadays, the Subdistrict Administrative Organization has faced many problems that made the administration of the Subdistrict Administrative Organization unsuccessful as it should and does not meet the needs of the people. Especially the problem of people participation, most of them still lack political participation, partly since politicians who had been elected rarely go or come back to visit the people. They tend not to clarify the working status or not allow people to participate in the development of their local area. Most people look are filled with negative minds towards the politicians and paint them negative too. Therefore, they decide not to cooperate in various activities. These problems are important to the local political development and affect

national politics and especially The Constitution of the Kingdom of Thailand 2017, Section 43, Section 133, Section 254 and section 256. Etc. outlines the direct participation of the people in politics [1]. Therefore, political participation is essential in a democracy. Political development takes place when people get involved in politics [2].

Pa Phai Sub-district Administration Organization is an important government agency that plays a vital role in local development and is closest to the people. It serves as the agency that acknowledges the people's problems and solves them, accordingly, including dissolution of conflicts that occurred in the local community. Although the sub-district municipality is closer to the community and can recognize the problems that happen within the community, that was not the real purpose of the sub-district municipality. The key issue is to encourage local people to participate in various operations or activities, with the district municipality such as attending meetings, participation in the Sub-district Development Plan, project participation. The monitoring process of the Sub-district Municipality working condition must be done with residents. But in the past, most of the operations were carried out by the sub-district municipality unilaterally operates by themselves, which now becomes the major problem for the Sub-district municipality [3].

During the research, it was discovered that the People in Pa Phai Sub-district, San Sai District, Chiang Mai Province involvement in the development of the five-year infrastructure plan was at a very level, and the main reason was that the people's self-thought that it's not lawfully indicated in the law that they had to participate or get involved in the process. Therefore, government agencies and other organizations should motivate and encouraged people to play their role in various ways. By providing them more knowledge, schedule meetings, set up training seminars, promote the establishment of networks and establish various groups of associations and organizations. For the development of local communities, as well as attracting people to play their respective roles in the management of local government municipality, by joining various committees in the local government organization and also encourage the people to play their role in the development of local areas according to proper democratic way.

From the aforementioned problems, the researcher is therefore interested in studying ways to promote people participation in the local development plan of Pa Phai Sub-district Municipality, San Sai District, Chiang Mai Province. For the sake of knowing how much the people participated in the local development plan. And to serve as a guideline for promoting the development of people's

participation in the most accurate and relevant possible way. This will result in the majority of the people participating more effectively. Hence, this will be beneficial for the development of Thai politics towards a democratic regime of government in the future.

II. RESEARCH OBJECTIVES

The objectives of this research article were 1) to study the level of People's Participation in the Local Development Plan of Pa Phai Subdistrict Municipality, San Sai District, Chiang Mai Province 2) to study the problems and obstacles to people participation in developing a local development plan for Pa Phai Subdistrict Municipality, San Sai District, Chiang Mai Province. 3) to suggest and give guidelines for the promotion of people's participation in the participation of local development plans of Pa Phai Subdistrict Municipality, San Sai District, Chiang Mai Province

III. RESEARCH METHODS

A: Population and sample groups

The population in the study were people who have domicile and residence in Pa Phai Subdistrict Municipality, San Sai District, Chiang Mai Province consisting of 14 villages, a total of 12,947 people 4,218 households [4] the researcher used the Yamane formula (1973), with a confidence level. 95 and set the error level to 5 and also use simple random sampling on 400 people.

B. Research tools

The tools used to collect data in this research were Questionnaires that the researcher created from the theory Concepts and research related to guidelines for promoting people participation. By using the same questionnaire which is classified into 3 parts as follows Part 1 General information of respondents The question were in form of checklists divided into 6 such as sex, age, marital status, education, occupation and income.

Part 2: Questionnaire on the level of people's participation in the local development plan of Pa Phai Subdistrict Municipality, San Sai District, Chiang Mai Province has the following steps:



There are 5 levels of a rating scale with scoring criteria as follows:

- 5 means the highest level of participation
- 4 means a high level of participation

- 3 means the level of participation is moderate.
- 2 means the level of participation is low
- 1 means the lowest level of participation.

Part 3 Problems and obstacles to people's participation in the preparation of local development plans of Pa Phai Sub-district municipality, San Sai District, Chiang Mai Province It has an open-ended questionnaire style.

Part 4 Suggestions and guidelines for promoting people's participation in local politics in the preparation of local development plans of Pa Phai Subdistrict Municipality, San Sai District, Chiang Mai Province was carried out in an open-ended question.

While testing the reliability of the first 30 questionnaires with real samples in the nearby municipalities. We found that the value is 0.921, which is close to 1, so it is considered a high level of reliability.

C: Data analysis

Methods for analyzing the data for this stud were descriptive statistics, such as frequency, percentage, mean and standard deviation.

IV. RESULTS

1.General information of the respondents, most of the respondents were female, 227 people (57.47) per cent, aged 41-50 years, 128 people (32.14 per cent), married 239 people (60.51%), educational level diploma level/ Vocational Certificate 123 people (31.14 per cent) Occupation, sales / personal business, 102 people, income 20,001-30,000-baht, 110 people (27.84 per cent)

The research results according to the objectives are as follows.

Objective 1: Data analysis on the level of people's participation in the local development plan of the Pa Phai Subdistrict Municipality, San Sai District, Chiang Mai Province. Overall it was at a moderate level

People participation level	\bar{x}	SD	Evaluation criteria
1. Participation in problem solving and causes of the problem.	3.28	0.87	moderate
2. Participation in planning and decision-making	3.29	0.87	moderate
3. Participation in the implementation of project activities	3.31	0.88	moderate
4. Participation in monitoring and evaluation	3.23	0.89	moderate
Total	3.28	0.84	moderate

Objective 2 problems and obstacles to people participation in developing a local development plan of Pa Phai Subdistrict Municipality, San Sai District, Chiang Mai Province. In general and specific issues it can be classified as follows: (1) The people do not seriously consider

participating in the problem finding and the cause of the problem. (2) The People lack knowledge and understanding of their rights and duties. (3) the people lack knowledge and understanding in analyzing and scrutinizing problems before the community gathering. (4) Officials did not give priority to participate in the project seriously. (5) the management policy is not a solution and does not meet the needs of the community (6) Village leaders did not allow people to participate thoroughly. (7) The lack of publicity and coordination of staff causes problems and obstacles in the preparation of local development plans. (8) The people do not take part in setting regulations of projects or activities. which is consistent and suitable for the area (9) The staff does not have the proper method or approach to staging the planning and in the preparation of plans and projects.

Objective 3: Recommendations for promoting people participation in the preparation of local development plans of Pa Phai Subdistrict Municipality, San Sai District, Chiang Mai Province

1. Participation in problem-solving and its causes. The recommendations for participation can be summarized as follows: (1) The sub-district municipality should have a guideline to encourage people to focus more on inventing problems and the causes of problems. (2) Officers or leaders should allow people to participate widely. (3) Officials and agencies should place greater emphasis on people participation (4) Relevant officials should organize training sessions or organize meetings to educate people to have more knowledge and relevant information to figure out the problem and the cause of the problem. (5) officials have to meet and educate the people and participants to plan the development of communities and villages. Through the community platform

2. Participation in planning and decision-making: The recommendations for promoting participation can be summarized as follows: (1) Municipalities should encourage citizens to focus on active participation in planning and decision-making. (2) Develop appropriate methods or guidelines for planning and decision making, for example, Consultation meetings are held, and in every planning of plans and projects, a community forum should be made for the villagers to make decisions based on their priorities based on a majority vote. (3) Should be trained to educate people to have more knowledge and relevant information for planning and decision making.

3. Participation in the implementation of project activities. The recommendations for participation can be summarized as follows: (1) The implementation of the project requires the people to participate in the responsibility as well. By dividing into each section have the correct documentary

evidence and make it transparent and verifiable (2) The municipality should campaign to encourage people to pay more attention to participation in the project. (3) projects should have a committee or working group with a variety of role and ability (4) Municipalities should take an active part in the implementation of the project, and (5) Should encourage the use of knowledge in project management to achieve success.

4. Participation in monitoring and evaluation: The recommendations for participation can be summarized as follows: (1) In terms of Evaluation Methods: There should be a committee to monitor the performance of projects and activities. of the community or village and report the results of the assessment at every monthly meeting. (2) The people should actively participate in the assessment, at least 3 people. leaders and officials must be jointly responsible for the assessment. (3) Municipalities should actively take part in public assessments; (4) The peoples should be trained, educated to enable them to have relevant information for evaluation; and (5) Officers and leaders should provide opportunities for people to participate in comprehensive assessments.



V. DISCUSSIONS RESEARCH RESULTS

There are important issues that have been discovered based on the research objectives. The researcher has presented the results according to the following objectives.

1. Participation in problem-solving and causes of the problems:

The overall and individual results of the study were at a moderate level. This is because Sub-district municipalities did not encourage people to focus on problem-solving and the causes of the problems, and there was also a lack of publicity. Allows the people to participate in every step and attend meetings with the people to plan the development of communities and villages through the community forum. The result from the research was consistent with the result of Nongnooch Yabunna et.al (2016) on the participation of people in the process of preparing a 3-year subdistrict

development plan (2014-2016) of Ban Pong Sub-District Municipality, Hang Dong District, Chiang Mai Province. They found the people's lack of knowledge, lack of analysis and screening, community problems, Leadership problem both politics and governance, no operational plans to achieve clearer objectives, lack of coordination and insufficient budget for the proposed project [5] The result was also consistent with the research study of Thanasilp Siewthong (2010) that studied the participation of the people in local governance at the village level: a case study of Tak Bai District, Narathiwat Province. The results of the study showed that people do not take their participation seriously. Village leaders did not allow people to participate thoroughly. and government officials or agencies do not attach importance to participation in the implementation of the project seriously. People are ignorant and lack relevant information and villages lack strength. [6] The result of our study was also consistent with the research of Watanyu Upananchai and Chainanthorn Khao-ngam (2019) they studied the effectiveness of the preparation of a three-year development plan of the Phra Luang Sub-district Administrative Organization, Sungnen District, Phrae Province. The result of their study found that people still lack the knowledge and understanding of how to draw up a three-year development plan. They believed that it is the role of government and local authorities in solving community problems [7]. In addition, the result of our study was also consistent with the research results of Phakamas Palkachentra, Poonchat Wichaidit, and Wasana Jaturat (2020) on People's Participation in Waste Management of Local Administrative Organizations in Ban Na Doem District Surat Thani Province. It was found that the local government organization had organized a community meeting with the people, this is to allow people to propose their problems, find the cause, and jointly make plans for the management of the waste that occurs in the community. Campaigns and public relations were done to provide knowledge and understanding about correct waste separation. The local government organization should organize activities or give information by using modern technology as a tool to encourage the new generation to participate in various activities [8]

2. Participation in planning and decision-making:

The overall results of the study were at a moderate level. This is because leaders or officials do not allow people to participate thoroughly, nor do they recognize the people to seriously get involved in planning and decision-making. Therefore, participation in planning and decision-making is important. The result of our study was consistent with the study of Parichat Walaisathien (1999), it was stated that participation in development by allowing people to participate in the development from the beginning

to the end of the project; These include participating in problem-solving, planning, decision making, mobilizing resources, evaluating and receiving benefits arising from projects. However, the project must be consistent with the way of life of the community's culture. [9] Our results were also consistent with the research study of Sopida Srinun (2015) That studied people's participation in the development of the Betong Municipality Development Plan, Betong District, Yala province, the results showed that participation in decision-making was at a moderate level. There are issues of attendance to propose local development problems and involvement in thinking and formulating development solutions to address local problems [10].

3. Participation in the implementation of project activities.

The overall results of the study were at a moderate level. When considering each issue, it was found that both male and female of all age groups, occupation, education level, income, and participation were at a moderate level. This is because most people are traders/ owns a personal business. Making it very impossible for them to sacrifice their working time for attending events and meetings, which were scheduled at the same time they had to go look for their daily bread. However, they were not also informed and unaware of the benefits of participating in the projects. Our result was consistent with the research study of Chuanphit Mahaprom (2007), who Defined people's participation as giving people the opportunity to participate in every step of the activities. Either activity arranges by government or private organizations, including activities arranged by people in that community, which might affect the people individually or the community as a whole. The people should participate from studying the problems, think together and brainstorm, think of a probable solution, get involved in decision making and planning, participate in activities and projects monitoring and assessment, as well as being fully responsible for all work [11]

4. Participation, monitoring and evaluation:

The overall and individual results of the study were at a moderate level. This is because most people have not been given the full opportunity at the district municipality to Participate in monitoring and evaluation in various projects. Our research result was consistent with the research of Sunatilak Yokthep and Yupap Rayupas (2017) that studied the participation of the people in the development of the Ban Dua Sub-District Municipality Development Plan. Mueang Nong Khai District, Nong Khai Province. The results of the study found that the level of people's participation in the follow-up and evaluation was at a moderate level [12].

5. From the Result of this Research Study, it was found that problems and obstacles to people participation in developing local development plans of Pa Phai Subdistrict Municipality, San Sai District, Chiang Mai Province, can be categorized as follows: The people do not seriously consider participating in the search for problems and their causes. The people lack knowledge and understanding of their rights and duties. The management has unclear policies, thus solving problems that do not meet the needs of the community. Lack of public relations and lack of coordination. From the aforementioned problems and suggestions, therefore, the people should be educated to see the importance of making a plan before making a development plan. There should be publicity, meeting for the people, so they can be thoroughly informed and clarify to the people the importance of participation. The people should be allowed to participate in every step also for effective and efficient use of resources and ideas. As proposed by Thanyaporn Ruangpattachok's research (2010) research on the people's participation in the preparation of the three-year development plan of the Bo Thong Sub-District Administrative Organization, Bang Raka District, Phitsanulok Province. Management recommendations are as follows: The Administrators should educate the people on the importance of the preparation of the plan, before making the three-year development plan, there should be some publicity on plan-making, and a meeting on the preparation of the development plan. However, a good three-year development plan should be based on the needs of most people and the administrator should open an opportunity for the people to participate in every step, create acceptance among the people, be transparent and verifiable, support the participation of the people following the intent of decentralization to the locality. Lastly, the administrators should educate people about rights and freedom of political participation, local administration and development at all stages [13]

VI. RECOMMENDATIONS

Suggestions for applying research results for use:

The preparation of the local development plan of the sub-district municipality should be open to the public to participate in every step, listen to public opinions before formulating plans for various projects by exploring the real demand, problem and provide adequate budget support as appropriate. Engage in training or meetings to clarify their knowledge and relevant information to the people before allowing them to jointly determine projects or activities.

Suggestions for further research:

1) study the motivation factors for participating in the local development plan of the municipality of Pa Phai Sub-district, San Sai District, Chiang Mai Province. 2) Make a comparative study of people's participation in the preparation of local development plans with other sub-district municipalities in the nearby area 3) Study other techniques that should be used for data collection in research. To enable the researcher to get more detailed information such as in-depth interview and group discussions, etc.

VII. CONCLUSION

From the study research on ways to promote people's participation in the preparation of local development plans of Pa Phai sub-district municipality, San Sai District, Chiang Mai Province. Which aimed to study the level of people's participation, problems, obstacles, and recommendations for the preparation of local development plans, this study was carried out with a quantitative method, with a sample population of 400 people. The data collection tools were questionnaires and observations. We use the SPSS software application to analyze statistical values, such as; percentage, mean, and standard deviation. The results of this research showed that The level of people's participation in the preparation of the local development plan of the Pa Phai Subdistrict Municipality overall was at a moderate level. As for the problems and obstacles that were caused by people's lack of knowledge and understanding of their rights, roles and duties. and the administrators give the people fewer opportunities to participate in every step causing a lack of public relations and good coordination. Therefore, according to the result of this research study, we give the following recommendations as follows: information should be publicized thoroughly and regularly to the public. The administrators should show their sincerity and give people the opportunity to participate in every step, also they need to explain or clarify for the people to see the importance of participating in planning for real local development

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Process of Community Involvement in Enhancing Local Identity Through Processing and Creating Added Value of Soy Products in Mae Hong Son Province

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Abstract— The objectives of this research was to study the problems and needs of the community, strengthening and enhancing their local identity through processing and creating added value for soy products Mae Hong Son Province, and to develop a processing model and create added value for soy products with the process of community involvement. This research was carried out by using action research processes and conducted SWOT analysis. Data collection was done from related documents, in-depth interviews, organizing a participatory brainstorming meeting. The samples used in the study were community enterprises entrepreneurs and a network of cooperative community enterprises, totalling 21 communities. The study results revealed (1) the problems and needs of the communities for strengthening and enhancing local identity through processing and creating value-added for soy products. Shows the following Strengths 1) there were enterprise groups within the community 2) they maintained the identity of the community 3) the members of the community had solidarity 4) there were various community tourism activities 5) there were sufficient raw materials for production 6) The resources within the community are applied for benefit 7) they have a variety of local wisdom 8) Group leaders are strong and have work potential. The result of the research shows the following Weaknesses 1) lack of funds for operation Limited production 2) Lack of knowledge and understanding of products processed for sale 3) Lack of materials and equipment to extend the product 4) No publicity 5) No product brand name 6) No product logo 7) No packaging 8) Lack of proactive action 9) Lack of marketing and technology personnel 10) Lack of distribution channels 11) No international certification standards. The research results show the following Opportunities: 1) Thai people pay more attention to healthy soybeans, 2) social media online technology 3) there were supports from government policies and local authorities. The result of the research shows the following obstacles (Threats) (1) There are restrictions on funding sources (2) Development, processing, and adding value to soy products through a process of community participation in enhancing local identity in the form of MAEHONGSON, which consist of the following elements: 1) community-based development 2) learning and exchanging knowledge 3) Design and differentiation 4) Customer-centric marketing concept 5) Brainstorming and knowledge management 6) Appropriate use of technology 7) Solidarity 8) Product acceptance 9) Human capital development 10) Standard certification. The suggestion to the community can be developed by combining identity and local wisdom in the utilization of resources to create products that increase the community's income in the form of community enterprises and creating a vast network.

Keywords— Process of Community Engagement/Participation, Enhancement of Local Identity, Processing and Creating Value Added for Soy Products

I. INTRODUCTION

Nowadays, Thailand has used The National Economic and Social Development Plan No. 12, 2017 to 2021 to focus on uplifting the economy and society, a continuation plan from Plan No. 11, that both support raising of labour productivity and enhancing career, income, and assistance linked to productivity for the lowest segment of the population, the disadvantaged, women and the older people. Such as

supporting small businesses, medium businesses, and small community enterprises. This provides them access to funds to build careers and support access to good quality products and inputs at fair prices. Moreover, simultaneously optimize spatial budget utilization and integration, including the reduction of inequality. [1] Although the Thai government has issued many policies to stimulate the community's economy both in the government-led promotion and support processes, it creates opportunities for citizens and communities by forming groups and clubs to participate in many actions to

achieve the objectives following the established policies.[2] also, create stability of the community economy from the integration of production processes based on the potential and Strength of the community in a balanced way. Emphasis is placed on production for sufficiency in the community, with grouping in the form of cooperatives, occupational groups, supporting the use of local wisdom to create product values, as well as creating a system that helps foster community development, coupled with the check of management and marketing skills in occupations. [3] However, the direction of change must come from the group and must be strong enough to initiate a project or operation. For reasons that everyone recognizes together on behalf of the group to achieve the desired change of the group [4], including giving people the opportunity to participate in initiatives, considerations, decisions, joint actions, and take responsibility for matters that affect the people themselves. [5] This approach shows that Thailand is extracting its true potentials as a tool to drive the rolling of a creative economy, which tries to increase the value of Thai products and services. By relying on creativity based on wisdom and cultural heritage in creating innovation and creating added value. Based on the summary meaning of "Creative Economy" said, "It is the creation of value created by human thought." [6] by producing innovative products that meet consumer needs and create economic value.

Therefore, it can be seen that the main problem of community enterprises is the product that does not meet the market demand. This is because community enterprise operators lack knowledge in such matters. They also don't know how to utilize wisdom capital and other kinds of capital in the community to develop their products, which is to create added value of the product using Thai identity or local wisdom of Thai products. There are still few and only a limited number of manufacturers, lack of design and branding (brand) of Thai products because most Thai products are in the form of contract manufacturing. Therefore, they only use foreign brands or produce products of low value. Some community enterprise entrepreneurs still lack the creativity to add value to community products and innovation from the said problems. Consequently, the community enterprise entrepreneurs should be developed and given adequate skills to gain more knowledge and promote creativity that will enable them to apply local wisdom to add value to community products and meet the needs of consumers and also equipped and develop them for competitiveness, which is a form of developing the community enterprises. Thus, create a stable and sustainable community economy.

Mae Hong Son Province is a province in the north of Thailand. It is a province with many distinctive features, especially in the terrain and ethnic diversity. It is a province

with vast local wisdom that still maintains its identity. The people have a beautiful way of life according to the culture and traditions passed down from generation to generation. The people live a simple lifestyle, and the people engage mainly in a rainfed agricultural system. Hence, the people do not have to struggle more than necessary. They farm in seasons and focus on a sufficiency lifestyle of living. The leftovers were then distributed, traded, exchanged in crops and grains. However, nowadays, there is more competition. Agricultural products are also grown in large numbers. To focus on trade rather than planting for consumption, causing problems of excess supply of agricultural products. Subsequently, they could not sell them or are being priced at cheaper rates. Causing severe and vital problems for farmers in the area. For example, the problem of "SOYBEAN." Soybean is one of the essential economic crops for farmers in Mae Hong Son Province. Although the model community product in Mae Hong Son Province, such as processed fruit product, wicker products, a local textile product, already reflect the local wisdom outstandingly. As for soybeans, there is still a lack of integration of local wisdom following production knowledge and the needs of modern consumers. This can be seen from the packaging of most products. They are not outstanding or different from the production of the same product in other provinces. At the same time, the production process is not acceptable from other places. Be it the quality of raw materials, safety, and innovation, etc. As a result, community products in Mae Hong Son province are not as popular as they should be. [7].

From the problem of developing community enterprise products, it is urgently necessary to develop creative product models for privatization and increase the value of community enterprises in Mae Hong Son Province. To create value-added products caused by creativity, suitable for community enterprises in Mae Hong Son Province, and there is a possibility, The results of the study will be beneficial to product development, which will raise the level of community enterprises and the economy of Mae Hong Son Province respectively. In addition, the model can be used as a guideline or applied in other provinces in the future.

II. RESEARCH OBJECTIVES

The objectives of this research article were 1) to study the problems and needs of communities in enhancing local identity through processing and creating added value of soybean products in Mae Hong Son Province and 2) to study, develop, process and create added value of soybean products through the process of community participation

III. RESEARCH METHODS

This research is participatory action research. Therefore, according to the concept of (Kemmis and Mc Taggart) [8], also known as PAOR, namely Plan, Act, Observe, and Reflection, which is detailed as follows.

Step 1 Planning (Plan): This step was to analyze the strengths, weaknesses, opportunities, threats, or SWOT analysis and plan together to solve problems. This leads to action planning to strengthen local identity by processing and creating added soybean products. This includes four activities: 1. Product development activities by extending existing products 2. Logo development activities, packaging activities 3. Product label development activities 4. Product page creation activities (Page)

Step 2 Action (Action): Jointly implement the action plans laid down in all four activities.

Step 3 Observation (Observe): This procedure is to collect information about the practice results. Through observation and evaluation.

Step 4 reflects (Reflection): This step takes the results from observation and evaluation to analyze and reflect the results for further improvement and development.

Population: are entrepreneurs of 10 small enterprises in 2 districts, from Mae La Noi District, which include the following community, Ban Mae La Noi, Ban Mae La Luang, Ban Wang Khan, Ban Mai Pattana, Ban Santisuk, and from Pai District, the following communities were present Nam Hu, Ban Santichon, Ban Pam Bok, Ban Thung Pong and Ban Wiang Tai, including those who were involved in the utilization of local wisdom, which consists of 80 people, that participated in the forum for value development and added value of community enterprise products. By Increasing the development of product labels. Group discussions with key informants to study the value creation of small community enterprise products in the area, analyze their strengths, weaknesses, opportunities, and threat or SWOT analysis, and create product values of small community enterprises in the area. Then jointly survey the operating conditions and application of local wisdom with innovative, creative products of the enterprises in both districts by interview. To collect preliminary information of enterprise groups at the district level by concluding all lessons/ideas together and teach and return acquired knowledge and skills to the community's people through organizing meetings in the area. The tools used for data collection are surveys, in-depth interviews—observation, organizing a forum Community Participatory Meetings, and Content Analysis.

IV. RESULTS

Objective 1: Analyze problems and community needs for strengthening local identity through processing and creating added value of soybean products in Mae Hong Son Province. When analyzing SWOT strengths, weaknesses, opportunities, and threats from group discussions from 2 districts, there were opinions and consistency in each district. We found that in terms of Strengths, it includes the following: 1) there were enterprises within the community 2) there was a preservation of the community's identity. 3) There was solidarity among community members 4) There are various community tourism activities 5) Sufficient raw materials are available for production 6) Resources within the community are applied for benefits 7) There is a variety of local wisdom and 8) Group leaders have Strength and work potential. In terms of Weaknesses, we discovered that there were: 1) Lack of funding sources for production operations 2) Lack of knowledge and understanding of the products being processed for sale 3) Lack of materials and equipment for further improvement of the products 4) No publicity 5) No product brand name 6) No product logo 7) No modern packaging 8) No proactive operation 9) Lack of marketing and technology personnel 10) No diversification of distribution channels and 11) No international certification standards. In terms of Opportunities, we found that 1) Thai people are more interested in soybeans for health. 2) Social media technology. 3) Support from government policies and local agencies. Lastly, in terms of Threats, we found that 1) There are limitations on funding sources.

Objective 2: Developing, processing, and creating added value of soybean products by community participation process is called MAEHONGSON Model, and it consists of 10 parts, such as 1) community-based development 2) learning and exchange of ideas and Knowledge 3) Design and Differentiation 4) Customer-Focused Marketing Concept 5) Brainstorming and Knowledge Management 6) Appropriate Technology 7) Unity 8) Product Acceptance 9) Human Capital Development and 10) Certification.

Workshop for developing, processing and creating added value of soybean products by the community participation process



V. DISCUSSIONS

1. Problems and needs of the communities in enhancing local identity through processing and adding value to soybean products were carried out through in-depth interview methods on the chairman, vice, and community enterprise members. We analyze the target group (STP) and analyze the environment (SWOT) to identify strengths and opportunities, improve product weaknesses, and prevent threats and obstacles. The retrieved information was used to develop and reshape the product's image effectively is the concept of Keith & John (1985). Describes participation as being mentally involved and the mood of a person in a group or situation. Therefore, having such relevance serves as a stimulating cause to help achieve the group's goal, with a sense of responsibility for such group [9]. Including the idea of Reeder (1963) [10] Huntington & Nelson (1975) [11]. Define participation as in social interaction, including individual and group participation. This was following the idea of Erwin (1976), who proposed that participation is a process for people to be involved in developing, sharing ideas, making decisions, and solving their problems. He emphasized strong involvement by using the creativity and expertise of the people to solve problems in conjunction with the use of appropriate technology and support to monitor organizational performance. In addition, Cohen & Uphoff (1981) [12] and Chapin (1977) [13] Proposed the following indicators of public participation (1) Interest in activities and

attendance (2) Sponsorships for activities or projects, (3) Membership and Directors and (4) Being an officer or worker. Wasi (1999) [14] talks about public participation as a local initiative in causing the organization and emergence of natural leaders. Therefore, this research focuses on participation and uses it as a framework of the study in 5 steps as follows: (1) joint study of the problem, (2) joint planning, (3) joint operation, (4) joint follow-up, and (5) joint maintenance. Therefore, participation was willingness, willingness to pay attention, to sacrifice both physically and mentally stronger and by showing it in both concrete and abstract. Therefore, it can be concluded that the participation of people, groups, organizations, networks and partners aims to create activities to achieve all parties' objectives. [15]-[16]-[17]-[18]-[19]-[20]. In the issue of participation of individuals and participation of groups to jointly (1) study and analyze problems, (2) participate in planning, (3) participate in work, (4) participate in follow-up, and (5) participate in equipment maintenance and resources to be worthwhile in participatory work within the community. Those mentioned above are to allow people in the community to think together, plan for action, modify various activities in the community, and provide opportunities for individuals to participate and be responsible for setting the direction for community development. Also, join in the decision of the community's future and receive its benefits and rewards.

2. Demand provides in-depth information on consumer needs. Such as; product, price, distribution channel, and marketing promotion activities. To develop products that meet what consumers want to buy. This was consistent with Woojung Chang & Steven A. Taylor (2016). Small businesses should pay attention to customers' needs and take advantage of proactive consumer engagement because it will help create satisfaction and prevent consumer dissatisfaction. [21] It was also consistent with Suchinda Jeamsriphong and Piyawan Petchmee (2017) that the big step in creating added value to products to the customer is to survey the community physically. Study community products to find outstanding product features that can be brought out as a selling point, develop product potential for the standard of the products to be accepted in the market [22]. It was also consistent with Supatnee Piamsuwanakij and Suthiporn Piamsuwankit (2019) in their study in "Community Product Development for Tourism in Nang Lae Subdistrict, Mueang District, Chiang Rai Province." Their research found that there were some implementation and operation problems in Ban Nang Lae Nai Organic Fertilizer Community Enterprise Group. Which includes lack of processing knowledge, lack of production technology, The packaging is not attractive and not unique, not up to standard, Lack of knowledge of information

technology, Low production capacity, low capital, not outdated equipment, tourists are not interested in their products including the general public. This led to the concept of product development as follows: 1) Quality development of dried banana products. (Dried banana) and dried pineapple, in terms of taste, color, and smell, can be preserved for a long time. Beautiful packaging reflects the community's identity 2) The development of newly developed products such as Sun-dried Banana Bars and Caramel Honey Baked Bananas (Hi-So Bananas). This made the community products gain more attention from tourists and the general public, allowing the group to earn more income. The new community products are still based on using 80 percent of local raw materials that the group can produce by themselves. which is sustainable and self-reliance [23]

3. Developing, processing, and creating added value of soybean products through the process of community participation is called the MAEHONGSON Model. It consists of 10 parts such as 1) community-based development, 2) learning and exchange of ideas and knowledge, 3) Design and Differentiation 4) Customer-Focused Marketing Concept 5) Brainstorming and Knowledge Management 6) Appropriate Technology 7) Unity 8) Product Acceptance 9) Human Capital Development and 10) Certification. This was consistent with Krishna Dararueang's (2017) research study, which studied the needs of consumers to develop new products that respond to market demands. The development of processed herbs in Ban Thi Sub-district was a differentiated product from competitors, both in appearance, adding value, and product quality. To create tremendous interest in processed herbal products [24], This was also consistent with Nattarika Chairat et al. (2021). Who focuses on differentiation in terms of utility, beauty, and good quality. In addition, processed herbal products at the sub-district level have a highlight of been created to be more modern. By bringing the strengths of local resources to differentiate the products, including business studies of the same type both inside and outside the country, and therefore apply gathered knowledge to the processing of herbal products business. [25] Furthermore, Thanakorn Sirisukantha (2013) [26] Applied some differentiation by utilizing local wisdom, which includes seven driving directions as follows: (1) Community owned and operated (2) Product comes from community processes mainly using raw materials, resources, capital, and labor in the community (3) Focus on innovative community initiatives (4) Focus on local wisdom combined with universal wisdom, (5) There are integrated actions that systematically link activities. (6) They made the learning process the primary working key and (7) self-reliance on the family and community as a fundamental goal.

VI. RECOMMENDATIONS

From the result of this research, There are suggestions both in terms of policy along with the implementation of the policy and suggestions for the subsequent study as follows:

1) Policy Recommendations: The Government agency should support community enterprise groups by jointly arranging a plan to develop and adjust the product image as a guideline for the development of other community enterprises. There should be training, procedures, and development processes should be organized. Expand the knowledge to other community groups so that this new knowledge can be used to add value to soybean products. Consequently, lead to income distribution and sustainable income for themselves and their families.

2) Policy Implementation Proposal: The value addition of a product, both appearances of the packaging and the label, help attract buyers and consumers, which is the target group to travel to the local community enterprise group. It leads to the development of income-generating channels for sustainable communities. Therefore, community enterprises should adjust their learning to use online media technology tools and websites to help create added value for soybean products.

3) Suggestions for Further Research: The result of the research is to add value to the product. Therefore, there should be research for building a product development network to connect with other network groups or communities to develop a more effective marketing management network.

VII. CONCLUSION

This research is participatory action research of small-scale community enterprise entrepreneurs with community participation in enhancing local identity through processing and creating added value of soybean products. This research was carried out using qualitative research methods by survey, in-depth interview, observation, organizing a forum, participatory community meetings, and SWOT analysis to know the strengths, weaknesses, opportunities, and threats/obstacles of the target group. Therefore, find ways to develop, process, and create added value for soybean products through community participation processes. The result of the study was a revelation of a new body of knowledge called the MAEHONGSON Model and consisted of 10 parts such as 1) community-based development 2) learning and exchange of ideas and Knowledge 3) Design and Differentiation 4) Customer-Focused Marketing Concept 5) Brainstorming and Knowledge Management 6) Appropriate Technology 7) Unity 8) Product Acceptance 9) Human Capital Development and 10) Standard Certification.

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The Analysis Causes of Error and Find Its Prevention in Air Cargo Operation Document

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Abstract— If air cargo import/export department fill wrong information in document such as number of shipping or airport's destination code, it may affect in revenue and be a caused in flight delay. This research aim to analyze cause of error and find prevention of error in filling of air cargo operation document, we use purposive sampling to chose the airline which operated cargo by themselves. This airline has 16 staffs and 1 manager in air cargo department and the tools in this research is semi – structure interview created by SHELL model and human error theory. Result found that all staffs haven't ever done intended error, however they all have done unintended error. The most three causes of unintended error is Origin of document is not clear (17.19%), Staffs are distracted by television/radio and other noise & Computer's equipment is incomplete (14.06%), and Staffs are not familiar with computer's software (12.50%) respectively. The most causes of error in SHELL model come from Liveware (40.62%), Software(31.26%), and Hardware & Environment (14.06%) respectively. In addition, standard operating procedure)SOP (was provided as a tool to prevent the error.

Keywords— Air cargo, Error prevention, SHELL model

I. INTRODUCTION

[1] From Thailand logistic development plan No.3, Thai Government promotes a development of three main airport namely Suvarnabhumi Airport, Don Mueang International Airport, and U-Tapao Rayong - Pattaya International Airport to expand capacity of regional airport in order to prepare for the increasing demand of air transport, improve airport management process to maintain quality of safety, availability of equipment, facilitate passengers and cargo, and emergency responding to meet international standard along to comply with memorandum of international cooperation.

Air cargo operation is a part of logistic which has activities to distribute time sensitive products and make sure it will come on time, however If staffs in import/export department fill a wrong information in document such as number of shipping or airport's destination code, it may affect in revenue and can be a caused in flight delay.

So, this research paper aim to analyze error and find prevention from filling air cargo document with contributes to reduce effect in revenue and flight delay in air transportation .

II. RESEARCH OBJECTIVES

- 1) To analyze cause of error in filling air cargo operation document
- 2) To find prevention of error in filling of air cargo operation document

Research question

- 1) What is the most factor of error in filling document?
- 2) There is any intended error in document?

Contribution

- 1) To reduce effect in revenue and flight delay in air transportation.

III. LITERATURE REVIEW

SHELL model

[2] The SHELL model is a tool show relationship of human and other factors surround them. The model has 4 components: Software, Hardware, Environment, and Liveware which can have relationship on the following.

Liveware – Software (L – S) is relationship between human (Liveware) and procedures / manuals / regulation (Software).

Liveware – Hardware (L – H) is relationship between human (Liveware) and equipment / machine / facilities (Hardware).

Liveware – Environment (L – E) is relationship between human (Liveware) and noise / ambient / temperature (Environment).

Liveware – Liveware (L – L) is relationship between human (Liveware) and interpersonal skills / team work / communication (other Liveware).



Figure 1 SHELL model

From Safety management manual: ICAO

Human error

[3] There is two type of human error first one is *Unintentional error* which can include an error from wrong judgment, carelessness, and lack of knowledge. Second one is *Intentional errors* which come from violation of rule or regulation. In additional, kind of human error also has two type first one is *Active error* means error we can see obviously such as driving fast while heavy rain and second one is *Latent error* means error we can't see obviously such as fatigue or stress while driving.

IV. RESEARCH METHODS

Population: We use [4] purposive sampling to the airline which operate cargo by themselves and this airline has 16 staffs and 1 manager in air cargo department.

Tool: This qualitative research has [5] semi – structure interview as a tool which created by SHELL model and Human error theory. After it was created we send to three expert in aviation field to validated its, if it had any comment from experts, we corrected its and send back to experts until no comment. Finally semi – structure interview had three parts for staffs on the following 1) General information. 2) Cause of error in filling data. 3) Any prevention for error. One part for manager is question for prevention from cause of error.

Data collection: data is collected by face – to – face interview with social distancing and mask must always wearing all the times. Moreover during an interview we use [6] data triangulation technique by asking the same question twice with same staffs (but different time) to check consistency of answer.

Data analysis: We analyzed data by using [7] content analysis and [8] Set theory to conclude cause of error then we present data to graph and table the result will be present into three parts. First one is general information of staffs, Next one is answering research objectives, and the last one is answer research questions.

V. RESEARCH RESULTS

First part: Staffs' general information

Table 1: Staffs' general information

No.	Gender	Age	Experience (Year)
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1.	Female	22	2
2.	Female	23	2
3.	Male	25	3
4.	Male	27	5
5.	Female	28	6
6.	Male	28	6
7.	Female	29	7
8.	Male	29	7
9.	Male	30	8
10.	Male	35	14
11.	Male	37	15
12.	Female	39	17
13.	Female	45	23
14.	Male	52	29
15.	Female	55	33
16.	Male	57	37
Average		35	13

From table 1, there are 16 staffs: 9 male (56.25%) and 7 female (43.75%). The lowest age is 22 and the highest age is 57. The lowest working experience is 2 years and the highest working experience is 37 years.

Second part: Answering research objectives

Table 2 : Causes of error

No.	Unintended	Intended
1.	1. Origin of document is not clear 2. Staffs are careless when checking document	No cause

Table 2: Causes of error (Continued)

No.	Unintended	Intended
	3. Error in spelling from customer 4. Staffs are distracted by television/radio and other noise 5. Staffs are not familiar with computer's software	
2.	1. Origin of document is not clear 2. Staff filled data in document too quickly 3. Staffs have limited time to completed document 4. Error in spelling from customer 5. Staffs are distracted by television/radio and other noise	No cause
3.	1. Origin of document is not clear 2. Staffs are distracted by television/radio and other noise 3. Computer's equipment is incomplete	No cause
4.	1. Origin of document is not clear 2. Error in spelling from customer 3. Computer equipment is incomplete	No cause
5.	1. Staffs talk to each other during fill	No cause

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	document	
	2. Staffs are distracted by television/radio and other noise	
	3. Staffs are not familiar with computer's software	
	4. Data is filled incompletely from customer	
6.	1. Staffs talk to each other during fill document	
	2. Staffs have limited time to completed document	No cause
	3. Staffs are not familiar with computer's software	
	4. Computer's equipment is incomplete	
7.	1. Origin of document is not clear	
	2. Computer's equipment is incomplete	
	3. Staffs have limited time to completed document	No cause
	4. Error in spelling from customer	
	5. Error from imported document	
	6. Staffs are not familiar with computer's software	

Table 2: Causes of error (Continued)

No.	Unintended	Intended
8.	1. Origin of document is not clear	
	2. Computer's equipment is incomplete	
	3. Staffs are not familiar with computer's software	No cause
	4. Staffs are careless when checking document	
	5. Staffs are distracted by television/radio and other noise	
9.	1. Staffs are distracted by television/radio and other noise	
	2. Staffs are not familiar with computer's software	No cause
	3. Staff has a confusion in document	
	4. Staffs talk to each other during fill document	
10.	1. Origin of document is not clear	
	2. Computer's equipment is incomplete	No cause
	3. Error from imported document	
	4. Staffs are careless when checking document	
11.	1. Computer's equipment is incomplete	No cause
	2. Staffs are distracted by	

	television/radio and other noise	
	3. Staffs talk to each other during fill document	
12.	1. Error from imported document	
	2. Staffs are not familiar with computer's software	
	3. Staffs are distracted by television/radio and other noise	No cause
	4. Staffs talk to each other during fill document	
13.	1. Origin of document is not clear	
	2. Computer's equipment is incomplete	No cause
	3. Error from imported document	
14.	1. Origin of document is not clear	
	2. Staffs are not familiar with computer's software	No cause
	3. Error from imported document	
	4. Staff had a confusion in document	

Table 2: Causes of error (Continued)

No.	Unintended	Intended
15.	1. Origin of document is not clear	
	2. Staffs have limited time to completed document	No cause
	3. Error in spelling from customer	
	4. Staff had a confusion in document	
16.	1. Origin of document is not clear	
	2. Computer's equipment is incomplete	No cause
	3. Staffs are distracted by television/radio and other noise	

From table 2 we can found that all staffs had not ever done an intended error (0.00%), however they had done an unintended error (100%). We conclude the causes of unintended on the table 3.

Table 3: the cause of unintended error frequencies

Cause of unintended	Frequencies	Percent
1. Origin of document is not clear	11	17.19
2. Staffs are distracted by television/radio and other noise	9	14.06
3. Computer's equipment is incomplete	9	14.06
4. Staffs are not familiar with computer's software	8	12.50
5. Error in spelling from customer	5	7.81
6. Staffs talk to each other during fill document	5	7.81

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7. Error from imported document	5	7.81
8. Staffs have limited time to completed document	4	6.26
9. Staffs are careless when checking document	3	4.69
10. Staff had a confusion in document	3	4.69
11. Staff filled data in document too quickly	1	1.56
12. Data is filled incompletely from customer	1	1.56
Total	64	100.00

From table 3, there are 12 causes of unintended error. The first 5 of error are origin of document is not clear 11 times (17.19%), staffs are distracted by television/radio and other noise along with computer's equipment is incomplete 9 times (14.06%), staffs are not familiar with computer's software 8 times (12.50%), error in spelling from customer, staffs talk to each other during fill document along with error from imported document 5 times (7.81%), and staffs have limited time to completed document 4 times (6.26%), respectively. Next table we will analyze causes of error with SHELL model which is a first objective.

Table 4: Analyze causes of error with SHELL model

SHELL model	Causes	%
Software	1. Staffs have limited time to completed document	31.26
	2. Staffs are not familiar with computer's software	
	3. Error from imported document	
	4. Staff had a confusion in document	
Hardware	1. Computer's equipment is incomplete	14.06
Environment	1. Staffs are distracted by television/radio and other noise	14.06
Liveware	1. Origin of document is not clear	40.62
	2. Staff filled data in document too quickly	
	3. Error in spelling from customer	
	4. Staffs are careless when checking document	
	5. Staffs talk to each other during fill document	

6. Data is filled incompletely from customer	12	100.00
Total	12	100.00

From table 4 the most cause of error is Liveware (40.62%), Software (31.26%), and Hardware/Environment (14.06%), respectively. Next table will be result of interview with manager to find prevention of error which is a second objective.

Table 5: Prevention of error from manager

Causes	Prevention
<u>Software</u>	
1. Staffs have limited time to completed document	1. Set a minimum time receive document
2. Staffs are not familiar with computer's software	2. Training staffs to familiar with software
3. Error from imported document	3. If something wrong staff must check with imported department
4. Staff had a confusion in document	4. Staff must ask to senior staff if they have confusion
<u>Hardware</u>	
1. Computer's equipment is incomplete	1. Set budget to complete equipment/ technician must be ready when asking
<u>Environment</u>	
1. Staffs are distracted by television/radio and other noise	1. Television will be allowed during break, however staff can listen to radio with using headphone
<u>Liveware</u>	
1. Origin of document is not clear	1. Always check document after receive from other department or customer

Table 5: Prevention of error from manager (Continued)

Causes	Prevention
<u>Liveware (Continued)</u>	
2. Staff filled data in document too quickly	2. Don't rush and re-check after finish filling document
3. Error in spelling from customer	3. Must ask or call to customer to correct information immediately
4. Staffs are careless when checking document	4. Cross check after finish filling document
5. Staffs talk to each other during fill document	5. Talking is not allowed when filling document, unless ask for important data
6. Data is filled incompletely from customer	6. Must ask or call to customer immediately

From table 5 Manager has prevention from error by using human (staffs) as a main tool such as training staffs, asking to senior staff, cross-checking, ask to customer, and providing technician.

Third part: Answering research questions

This research has two research questions to answer the first question we can look at table 4 then we can found the answer that Liveware is the most cause of error in filling document (40.62%) and second question we can look at table 2 then we can found that there is no any intended error in filling document (0.00%).

VI. DISCUSSION

The causes of error come from unintended error occurred randomly in table 2 called [3] “variable error” this mean we can’t predict and harder to deal error which consistent with research [9] “Human error and commercial aviation accidents: an analysis using the human factors analysis and classification system” said that accident causal factors are variable. The most causes of error come from Liveware which also consistent with [9] Scott’s research said the most cause of error come from operators (Liveware). Moreover cause of error in filling document is come from skill – based error such as staffs fill data too quickly (lead to typing mistake), talk to other staffs during work (lead to lack of concentrate). A manager provided standard operating procedure (SOP) such as cross checking after finished fill data which consistent in [10] Threat and error management said “execution countermeasures are essential for error detection”, Training new staffs to be familiar with software which consistent [11] motor programmed said “if a task performed often enough, it will become automatic and the required skill and actions are stored in long term memory”.

In addition, when we look at 3rd and 4th staffs who age and working experience are below average compare with 13th and 16th who age and working experience are above average we can found that they had the same frequencies of error and same cause of error: origin of document is not clear along with computer’s equipment is incomplete. It is means that difference age and working experience can have the same cause of error. Moreover 9 staffs with difference age and working experience have problem in concentration while working (Staffs are distracted by television/radio and other noise).

VII. CONCLUSION

All population divided into 9 male (56.25%) and 7 female (43.75%) with age average = 35 year and working experience = 13 year. From the first objective we can know from table 3 that origin of document is not clear (17.19%), staffs are distracted by television/radio and other noise (14.06%), computer’s equipment is incomplete (14.06%), staffs are not familiar with computer’s software (12.50%), error in spelling from customer (7.81%), staffs talk to each other during fill document (7.81%), error from imported document (7.81%),

staffs have limited time to completed document (6.26%), staffs are careless when checking document (4.69%), staff had a confusion in document (4.69%), staff filled data in document too quickly (1.56%), and data is filled incompletely from customer (1.56%) are causes of error in filling document. Second objective we can know from table 5 that manager using human (staffs) as a main tool such as training staffs, asking to senior staff, cross – checking, ask to customer, and providing technician to prevent error from filling document.

The Answer of first research question comes from table 4, Liveware (40.62%) is the most factors of error in filling document, Software (31.26%), and Hardware/ Environment, (14.06%), respectively and the last question answer comes from table 2, there is no any intended error in filling document (0.00%) but unintended error had been occurred in filling document (100.00%).

Finally, this research should be applied to the airline or air cargo agency to prevent error to reduce effect in financial (revenue) and flight delay in air transport. For future work we will consider to analyze air cargo operation [12] which is a part of flight delay.

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A Synthesis of Behavioral Issues for Assessing the Quality of Public Transport Drivers during 2017-2021

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Abstract— *The role of bus drivers is important for situation control to enhance safety and travel efficiency when passengers are on board. This article presented a literature review and a synthesis of information from 45 articles, on the operational issues of public transport drivers, related to the keyword “Public Transport Driver” between 2017 and 2021. The author obtained articles by searching the keyword and analyzed the content, then synthesized to identify issues and grouped into three categories to be easily understood, which consisted of causes of driver error, safety enhancement for public buses, service quality and involvement in improving service quality for public transport drivers. In the last part, accepted sub-issues were summarized for future research in public transport drivers. The results of this study promote awareness of key issues which were collected and synthesized for the benefit of other researchers on issues related to the future development of public transport.*

Keywords— *Transport, Public Transport, Driver Behavior, Quality of Public Transport Drivers, Driver Behavior Literature.*

I. INTRODUCTION

To build quality for public bus drivers, there are a number of issues that must be controlled in order to reduce risky behaviors which can lead to accident or negative impact on passengers and road users. The cause is frequently originated from unusual driver behaviors i.e., distraction while driving resulting from drivers' personal problems such as health problems, family problems or work-related problems. The problems must be taken into consideration because public service operators need to control quality of public transport and working conditions to be in line with professional development, convenience, and health of the drivers to meet the policies and service standards of the organization. Many researchers have tried to develop aids that can alarm to prevent crash and improve the overall driving experience. With the development of new technologies in cars, drivers are exposed to more sources of distractions, which can lead to accidents by mistake. With rapid population growth in urban area, it is necessary to establish transportation management policies and law enforcement so that transportation services can be more integrated into the transportation grid [1]. This is important for the quality of service on public transport. Therefore, access to daily commute should be carefully considered for the sake of sustainable transport planning.

Apart from the driver behavior that improves the quality of the service, customer behavior can also help design the right service, as well as strategies to improve the safety culture in the organization so that it can reduce driver unsafe behavior and reduce the number of accidents [2].

After synthesizing academic articles, there were differences in each issue to improve the quality of public driving practices for the preparation of standardization for continuous improvement to serve both public and private sectors. Another thing that should not be overlooked is that good service can attract tourists and can increase economic value, as tourists can travel with confidence, so it is necessary to ensure the safety and quality of service of public buses.

II. RESEARCH OBJECTIVES

To review the literature and synthesize articles about the operational issues of public transport drivers.

III. RESEARCH METHODS

The literature review was conducted appropriately considering the keyword "Public Transport Driver" to answer questions about what issues should be taken into account. This research was synthesized from 45 articles which can be categorized to be more easily understood so that the leader of a particular topic can use, and it can benefit future research.

The retrieved documents were also analyzed based on the type of publication (e.g., journal article, conference paper, report etc.).

IV. RESEARCH RESULTS

By conducting literature review of 45 articles from the keyword "Public Transport Driver", it could be sorted into 32 articles between 2017 and 2021 and 13 interesting articles in the former years. By synthesizing articles, it can be divided into 3 groups: driver error, safety enhancement for public buses, and service quality and engagement in quality improvement of services for public transport drivers.

A. Causes of Driver Error

There were 20 issues related to the behavior of employees that are to be focused on this topic, as shown in Table 1 after synthesizing 21 articles from literature review.

	emotional conditions/distractions/restraints	Speed	Intelligence/Expertise Driver's license renewal	Fatigue	Operating time/break time	Driver Gender	Driver Personality	Congenital disease	Traffic Condition	Technology	Passenger	infrastructure	organization	Family condition	Weather	Social consciousness	Punishment	Vehicle Type	Working Environment
[1]	✓																		
[4]		✓																	
[5]			✓																
[6]				✓															
[7]					✓														
[8]						✓													
[9]																			
[10]	✓	✓																	
[11]									✓										
[12]	✓								✓										
[13]																			
[14]			✓																
[15]					✓														
[16]																			
[17]																			
[18]																			
[19]			✓																
[20]								✓											
[21]																			
[22]	✓		✓																✓

Table 1 showed the causes of the driver error. This issue was primarily researched about intelligence and expertise, emotional conditions/distractions/restraints. Secondly, it was researched about fatigue, operational/break times, passengers, social conditions/consciousness, and work environment, respectively.

B. Safety Enhancement for Public Buses

There were 14 issues related to the behavior of employees that are to be focused on this topic, as shown in Table 2 after synthesizing 11 articles.

	Emotional conditions/distractions/restraints	Intelligence/Expertise	Motivation	Acceptance and Involvement	Traffic conditions/mis	Technology/Information	Passengers	infrastructure	Organization	Weather/Natural Disasters	Social consciousness	Punishment	Vehicle Type	Caution/Risk Reduction
[23]						✓		✓	✓					
[24]	✓					✓		✓	✓		✓			
[1]							✓	✓						✓
[25]		✓	✓	✓						✓	✓			✓
[26]														
[27]														
[28]		✓									✓	✓		
[29]														
[30]							✓	✓						
[31]				✓		✓	✓	✓						✓

Table 2 showed the safety of public buses. Most of the article authors are interested in studying the social conditions/consciousness of drivers and the provision of infrastructure. Secondary interests are information technology, intelligence/expertise education, weather/natural disasters, and caution/risk reduction, respectively.

C. Service Quality and Involvement in Improving Service Quality for Public Transport Drivers

There were 16 issues related to the behavior of employees that are to be focused on this topic, as shown in Table 3 after synthesizing 14 articles.

	Speed	Intelligence/Expertise Driver's License Renewal	Personality	Acceptance/Involvement	Passenger	infrastructure/Facility	Organization	Punishment	Working Environment	Caution/Risk Reduction	Service Quality Level	Service Rate	Travel Time	Customer Expectations	Service Evaluation
[32]					✓						✓				
[33]					✓										
[34]			✓						✓						
[35]					✓										
[36]	✓	✓									✓				
[37]						✓									
[38]					✓						✓				
[39]							✓								
[40]					✓									✓	
[41]	✓									✓					
[42]									✓						✓
[43]											✓				✓
[44]	✓														✓
[45]					✓					✓					✓

Table 3 showed the quality of service and involvement in improving the quality of services for public transportation drivers. Most authors were interested in studying passengers, organizations, service quality levels, and service evaluation, respectively.

V. DISCUSSIONS

After synthesizing the articles, there were 5 issues that the authors had the same interests from the aforementioned three categories: Intelligence/Expertise, Infrastructure, Passengers, Organization and Punishment.

A. Intelligence/Expertise

Intelligence/Expertise affect drivers' performance physically and mentally. Driver distraction is a major problem in the public transport sector, in line with the findings of *Shumin Feng* [10] *Gianfranco Fancello* [36] that had studied the fundamental risk factors of death for drivers to protect the safety of buses. The risk factors include the physical environment of the driver, the road characteristics and age of the driver. All of these cause a negative impact on the driver; therefore, it is important to improve the safety environment in order to increase driver motivation, which is in line with the findings of *Dian Mardi Safitri* [25], to minimize the impact on potential safety violations by drivers and to find out what causes a lack of knowledge and lack of sufficient expertise. This can sometimes result in trauma that can lead to committing suicide, which is line with the literature review of *Igor Radun* [28]. The findings of *Shalini Sinha* [37] also addressed that there is a relationship between passenger expectations and the availability of service quality level. When the service quality is poor, the passengers are very upset.

B. Driver

Driver is a very important factor to drive quality public transport, in line with *Munzilah Md. Rohani* [44] stating that drivers have the influence toward passenger decisions, and the role of drivers are to be focused on a better understanding of well-managed transportation. Maintaining high quality standards in service and efficiency is crucial to encouraging passengers to opt for public transport.

C. Infrastructure

Urban areas and facilities are experiencing rapid population growth. Improving government transportation services requires a role in shaping transportation management policies and law enforcement so that transportation services can be more integrated into the transportation grid. The quality of services on public transport is proposed as an important factor to access to the living convenience as required to be facilitated by the transport system, since low service quality can hinder the utilization which will result in reducing the ease of daily activity involvement, which is in line with the findings of *Margareta Friman* [23] *Kairatolla K. Abishev* [24]. They stated that functionality is a key feature to focus on and that characteristics related to travel safety awareness

should be carefully considered when planning sustainable transportation.

D. Passenger

Passenger is one of the important factors that affects the performance of the driver. Improving driver behavior by training, licensing and proper control of drivers are recognized to be able to increase traffic safety. On the other hand, pedestrians are another group to be carefully considered as another factor that influences driver behavior and other environmental factors *Meriem MANDAR* [31].

E. Organizations

Organizations are key to better establishing service quality policies and understanding passenger access. Strict budget, restriction imposed on drivers and excessive workloads, in line with *Alejandra Chaparro* [33] *Ching-Fu Chen and Yuan-Chun Hsu* [9] proved that working inefficiency may be present due to the lack of adequate incentives for drivers. Therefore, the reliability and quality of the service should be created. Hence, the organization should be involved in improving the legal and regulatory framework *Alexander Novikov* [26]. *Eva Kassens-Noor* [43]. *Vyacheslav Epifanov* [45]. *Sanjeev Sinha* [42], maintaining high quality standards in service and enhancing efficiency to encourage people to opt for public transportation.

F. Punishment

This issue is linked to the management of the organization that requires responsibility determination when a negative incident occurs during drivers providing services. A supervisor must not put too much pressure on drivers as it will cause stress during worktime, as the finding *Ming Guo* [41] showed that job insecurity has a negative impact on work. Hence, supervisors must realize that drivers need to receive higher safety support from supervisors and colleagues.

VI. CONCLUSION

Synthesis of behavioral issues for the quality of public transport drivers' performance explained the issues that benefit society and those who want to develop future transportation for the transformation into a Smart City, where drivers are not only responsible for driving, but also play important roles in controlling and understanding the transportation services equipped with technology in the operation.

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EV CAR consumption trend among people in Phra Nakhon Si Ayutthaya province

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Abstract— This research aims to 1) study social values, quality of life awareness, environmental responsibility, value added consideration, price acceptance and EV CAR consumption trend among people in Phra Nakhon Si Ayutthaya province and 2) study the influence of social values, quality of life awareness, environmental responsibility, value added consideration, price acceptance and EV CAR consumption trend among people in Phra Nakhon Si Ayutthaya province. Data were collected from 400 people in Phra Nakhon Si Ayutthaya Province. Data were analyzed by statistics, frequency, percentage, mean, standard deviation and multiple regression analysis.

The research results showed that consumers had a high level of opinion on social value factors, quality of life awareness, environmental responsibility, value added considerations, and price acceptance affecting the EV CAR consumption trend. The results of the hypothesis analysis revealed that social values, quality of life awareness, and value added considerations influenced on the EV CAR consumption trend. On the other hand, environmental responsibility and price acceptance had no influence on EV CAR consumption trends.

Keywords— consumption trends, social values, quality of life, added-value

I. INTRODUCTION

People all throughout the world are at risk from air pollution, particularly those who live in large cities, where there are many health-threatening polluting activities. Likewise, Thailand has been experiencing air pollution problems for many years and it is becoming more and more severe. This is a condition in which contaminants are present in amounts above normal for long enough to be harmful to living organisms. Air pollution can occur naturally, such as particulate matter from wind storms, forest fires, natural gas, or earthquakes, or it can be caused by human action, especially pollution from automobile exhaust in transportation, which is an air pollution problem that more severe than natural occurrence and are toxic substances that are vented into the atmosphere, such as carbon monoxide, nitrogen oxides, hydrocarbon compounds, dust smaller than 10 microns, lead and sulfur dioxide [1] that is extremely harmful to health. Thailand has a cumulative number of registered vehicles of 41,471,345, including motorcycles, passenger cars, trucks, and buses [2] (Department of Land Transport, 2021), which is a ratio of 1,000 people per 548 vehicles and is ranked 3rd in ASEAN. With the high consumption of cars, the fuel consumption increases and results in the oil price situation rising as well [3]. This also puts consumers at the expense of high fuel consumption costs. At the same time, the heavy use of

automobiles affects the environment causing life-threatening air pollution. For this reason, cities around the world are trying to find solutions to the air pollution caused by the burning of car fuel that is threatening the health of the world today.

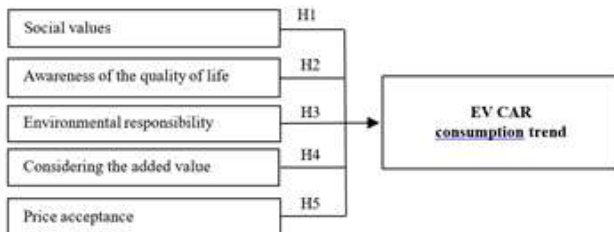
Therefore, the automotive industry innovates modern technology by producing electric vehicles (EV CARs) to reduce fuel consumption and reduce emissions into the air since electric cars are near zero emission vehicles. [4], which will be of great benefit to the world. However, even though the government has a policy to encourage the use of EV CARs to increase to 1.2 million vehicles by 2036 [5], [6], there is still quite a growth slowly despite the fact that EV CARs will reduce fuel consumption and be environmentally friendly. Promoting the reliance on electric vehicles can reduce greenhouse gas emissions equivalent to reduction in 6.13 million tons of carbon dioxide [7], and Thailand is one of the region's leading eco-friendly vehicle markets [8]. Therefore, the researcher is interested in studying the trend of EV CAR consumption of people in Phra Nakhon Si Ayutthaya Province by focusing on social values (SOV), awareness of the quality of life (AQL), environmental responsibility (ENR), considering the added value (CAV), and price acceptance (PRI) that influences the EV CAR consumption trend of the people in Ayutthaya province to apply the study results to the industry and businesses related to EV CAR and as a guideline for development to meet more demands of

consumers, which will have a real positive effect on the global environment.

II. RESEARCH OBJECTIVES

1. To study social values (SOV), awareness of the quality of life (AQL), environmental responsibility (ENR), considering the added value (CAV), price acceptance (PRI), and trends in EV CAR consumption of people in Phra Nakhon Si Ayutthaya Province.

2. To study the influence of social values (SOV), awareness of the quality of life (AQL), environmental responsibility (ENR), considering the added value (CAV), price acceptance (PRI) that affect EV CAR consumption trends of the people in Phra Nakhon Si Ayutthaya Province.



Research conceptual framework

III. LITERATURE REVIEW

EV CAR is a vehicle that uses accumulative electricity stored in a battery or other form of electrical storage device and uses the electricity obtained from the battery storage to drive the motor when it is used instead of fuel. At present, EV cars can be divided into 4 types according to technology: [5] 1) Hybrid electric vehicle (HEV) is a vehicle that uses a combination of conventional fuel and battery electricity. This type of vehicle has a lower fuel consumption than the engine only because when the brakes are applied some of the energy is stored in the battery and later used to drive the electric motor along with the operation of a fuel-powered engine. 2) Plug-in hybrid electric vehicle (PHEV) This type of vehicle has the same fuel and electrical system as a hybrid vehicle, but can be plugged into an external charger, so that when plugged in, the car can travel longer distances than an old hybrid system. The used battery can also be recharged to store its charge as needed. When the battery runs out, the car behaves similarly to a hybrid (HEV) system. 3) Battery electric vehicle (BEV) is a vehicle that uses an electric motor to drive alone, so it has a larger battery than other electric vehicles. Automakers may install a small engine to generate electricity to charge the battery to increase the range, hence the term range extender battery electric vehicle. 4) Fuel cell electric vehicle (FCEV) is a vehicle that uses a motor as the main power for

propulsion, like a battery electric vehicle, but the source of electricity is different. This type of car stores energy in the form of hydrogen gas and does not cause air pollution because when a car is powered it only releases water into the atmosphere. This type of vehicle is in the research stage and has not been commercially produced [9].

EV CAR consumption trend refers to the opportunity or probability that most consumers will see the benefits and worthiness that will cause a willingness to switch to EV CAR and would like to recommend it to people who know how to use it as well. Consumers' decision to choose EV CAR, which are new and unfamiliar innovations, may cause concerns, coupled with the high car prices, thus requiring a greater process of consideration. There may be a number of factors that drive consumers to choose EV CAR, including social values (SOV), awareness of the quality of life (AQL), environmental responsibility (ENR), considering the added value (CAV), and price acceptance (PRI).

Social values (SOV) refers to the beliefs of individuals in a society that adhere to a common practice in using electric vehicles that are technologically advanced and do not pollute the environment. Social values (SOV) is one of the factors that will stimulate the trend in buying electric cars because consumers believe that they will be appreciated by people around them as well, thereby making them more likely to consume cars [10], as hypothesis 1, social values (SOV) have a positive influence on the trend of EV CAR consumption.

Awareness of the quality of life (AQL) refers to how individuals prioritize their well-being and lifestyle with the expectation and desire to be healthy, live well, and more comfortably [11]. Consumers who value quality of life must be aware of good physical and mental health, convenience, comfort in life [12], or have a better life in terms of utilities, transportation, including the environment and fresh air, etc. This is in line with Maslow's theory of needs, which shows that human beings want to improve their lives in the order of five stages: they want to survive safely, need a warm family, and secure work to lead stability of life, especially in matters of good health, free from disease [13]. Hence, using EV CAR is one of the choices that consumers are interested in because using electric cars will improve the quality of life. Therefore, awareness of the quality of life (AQL) affected the trend of consumption [14], as hypothesis 2, awareness of the quality of life (AQL) has a positive influence on EV CAR consumption trends.

Environmental responsibility (ENR)

Environmental responsibility (ENR) refers to the willingness and care to make efforts to reduce pollution by changing behavior to make the environment better by using electric cars that help reduce dust pollution and improve the weather. If

consumers pay more attention to the environment by switching to electric cars, the air pollution will be reduced, which is considered to be the responsibility of everyone. Therefore, if a person is attentive to environmental responsibility (ENR), it will affect the trend of EV CAR consumption more [15], as hypothesis 3 environmental responsibility (ENR) has a positive influence on EV CAR consumption trends.

Considering the added value (CAV)

Considering the added value (CAV) refers to consumers' belief in and acceptance of innovative and valuable EV CARs with special features to help them significantly save fuel. The fact that EV CARs are characterized by innovative, modern designs and cost-effective fuel consumption has led consumers to pay attention to the increasing value of EV CARs. This results in a tendency for consumers to decide to buy an EV CAR to use more and more [16], as the hypothesis 4 Considering the added value (CAV) has influenced the trend of EV CAR consumption.

Price acceptance (PRI)

Price acceptance (PRI) means that consumers believe that EV CAR prices and maintenance are reasonable compared to current and future quality and value, thus being willing to pay willingly. When consumers are interested in buying a car, it is important to consider the cost-effectiveness of EV CAR as an attractive alternative, even if the price is high, but compared to the lower costs later, it is acceptable for consumers as this type of car uses electric power instead of the expensive fuel. As well as lower maintenance costs because there is no engine and no oil change, it makes maintenance easier and makes consumers more inclined to use EV CARs [17], as hypothesis 5, price acceptance (PRI) has a positive influence on the trend of EV CAR consumption.

IV. RESEARCH METHODS

This research is quantitative. Data was collected from 400 people in Phra Nakhon Si Ayutthaya Province. The researcher determined the sample by using the formula for calculating the sample size of the unknown population at the 95% confidence level, the error was 5%, and data were collected using a nonprobability sampling as per convenience sampling.

The instrument used for this data collection

The instrument used for this data collection was a questionnaire created from the study of the doctoral data. Materials, books, theories, and related research by creating tools in accordance with the subject matter and research scope are divided into 3 parts as follows.

Part 1 was the respondents' general information, including gender, age, occupation, income, and status, which was characterized as a closed-ended Multiple Choices Question of 5 items.

Part 2 was three questions about social values (SOV), three items of awareness of the quality of life (AQL), five items of environmental responsibility (ENR), three considering the added value (CAV), three price acceptance (PRI), and three EV CAR consumption trends, which were closed-ended questions and were characterized by a rating scale. Each question had 5 answers to choose from: Highest, High, Medium, Low, and Least levels.

Part 3 was opinions and suggestions which were open-ended questionnaires for the sample group to have the opportunity to express their opinions.

The researchers examined the tool quality by checking the content validity from 3 experts. It was found that the IOC (Index of Item – Objective Congruence) value was between 0.67 – 1.00, which met the criteria. Reliability is checked by finding the Alpha - Coefficient according to Cronbach's method, which found that the alpha coefficient was between 0.737 - 0.865 which was greater than 0.7 and the questionnaire was considered to have a high level of confidence [18].

V. RESEARCH RESULTS

The results of the data analysis revealed that the majority of the 400 respondents were female, aged 21-30 years, student or student occupation, income 10,001 - 20,000 baht, and were single.

Analysis of opinion level social values (SOV), awareness of the quality of life (AQL), environmental responsibility (ENR), considering the added value (CAV), price acceptance (PRI), and EV CAR consumption trends as in Table 1.

Table 1. Mean and standard deviation, social values (SOV), awareness of the quality of life (AQL), environmental responsibility, considering the added value (CAV), price acceptance (PRI), and EV CAR consumption trends

Factors	\bar{x}	S.D.	Review Level
Social values (SOV)	3.80	0.572	High
Awareness of the quality of life (AQL)	3.47	0.726	High
Environmental responsibility (ENR)	3.84	0.487	High
Considering the added value (CAV)	3.86	0.623	High
Price acceptance (PRI)	3.96	0.765	High
EV CAR consumption trends	3.47	0.785	High

From Table 1, opinion levels on social values (SOV), awareness of the quality of life (AQL), environmental

responsibility, considering the added value (CAV), price acceptance (PRI), and EV CAR consumption trends found that all factors were averaged at a high level. The price acceptance (PRI) factor was the highest average ($\bar{x} = 3.96$, S.D. = 0.765). It was followed by considering the added value (CAV) ($\bar{x} = 3.86$, S.D. = 0.362), environmental responsibility (ENR) ($\bar{x} = 3.84$, S.D. = 0.487), social values (SOV) ($\bar{x} = 3.80$, S.D. = 0.572), awareness of the quality of life (AQL) ($\bar{x} = 3.74$, S.D. = 0.726), and EV CAR consumption EV CAR trends ($\bar{x} = 3.47$, S.D. = 0.785), respectively.

Analysis of social values (SOV), awareness of the quality of life (AQL), environmental responsibility (ENR), considering the added value (CAV), price acceptance (PRI) influence on EV CAR consumption trend of People in Phra Nakhon Si Ayutthaya Province.

In hypothesis testing, the properties of the variables were checked to see if the data were suitable for multiple regression analysis by using Pearson's Correlation Coefficient to avoid correlation problems between the independent variables that were too high that may cause problems Multicollinearity as in Table 2.

Table 2 The correlation coefficients, social values (SOV), awareness of the quality of life (AQL), environmental responsibility, considering the added value (CAV), price acceptance (PRI), and EV CAR consumption trends.

Variables	SOV	AQL	ENR	CAV	PRI	EV CAR	VIF
\bar{x}	3.80	3.74	3.84	3.73	3.96	3.47	
S.D.	0.57	0.72	0.49	0.82	0.77	0.78	
Social values (SOV)	-	0.218**	0.349**	0.181**	0.219**	0.306**	1.298
Awareness of the quality of life (AQL)	-	-	0.292**	0.190**	0.219**	0.219**	1.171
Environmental responsibility (ENR)	-	-	-	0.315**	0.182**	0.194**	1.158
Considering the added value (CAV)	-	-	-	-	0.187**	0.278**	1.147
Price acceptance (PRI)	-	-	-	-	-	0.073	1.091
EV CAR consumption trends	-	-	-	-	-	-	-

* Sig = p < 0.05, ** sig = p < 0.01

From Table 2, it was found that the correlation coefficients among independent variables, social values (SOV), awareness of the quality of life (AQL), environmental responsibility (ENR), considering the added value (CAV), price acceptance (PRI) had the value between 0.021 – 0.349, which did not exceed 0.8. The determination of the VIF value found that the VIF value was 1.091-1.298, which was not more than 10, indicating that the relationship of the independent variables did not cause multicollinearity problems. Therefore, it can be tested by Multiple Regression Analysis as in Table 3.

Table 3: Results of analysis of social values (SOV), awareness of the quality of life (AQL), environmental responsibility (ENR), considering the added value (CAV), and price acceptance (PRI) influencing the EV CAR consumption trends of the people in Phra Nakhon Si Ayutthaya Province.

Factors	EV CAR consumption trend among people in Phra Nakhon Si Ayutthaya Province		t	P-Value
	Regression coefficient (β)	Standard discrepancy		
Constant value(s)	003.1E-013	0.043	0.000	1.000
Social values (SOV)	0.227	0.049	4.603	0.000**
Awareness of the quality of life (AQL)	0.209	0.049	4.259	0.000**
Environmental responsibility (ENR)	-0.007	0.052	-0.134	0.893
Considering the added value (CAV)	0.203	0.049	4.156	0.000**
Price acceptance (PRI)	-0.014	0.048	-0.296	0.767
Adjusted R Square	0.174			

* Sig = p < 0.05, ** sig = p < 0.01

From Table 3, it was found that independent variables can predict dependent variables at 17.40% based on the Adjusted R Square value of 0.174. When considering each factor, it was found that social values (SOV), awareness of the quality of life (AQL), considering the added value (CAV) had a significant positive influence on the EV CAR consumption trend of people in Ayutthaya province at the 0.01 level ($\beta = 0.227$, $\beta = 0.209$, $\beta = 0.203$, respectively), which was the acceptance of hypothesis 1, hypothesis 2, and hypothesis 4. The environmental responsibility (ENR) and price acceptance (PRI) factors did not affect the EV car consumption trend of people in Ayutthaya province ($\beta = -0.007$, $\beta = -0.014$, respectively), which rejects hypothesis 3 and hypothesis 5.

VI. CONCLUSION AND DISCUSSION

An analysis of the public opinion level in Ayutthaya province revealed that social values (SOV), awareness of the quality of life (AQL), environmental responsibility (ENR), considering the added value (CAV), price acceptance (PRI) and the EV CAR consumption trends, had a high level of opinion. It also found that social values (SOV), awareness of the quality of life (AQL), and considering the added value (CAV) influenced the EV CAR consumption trends. Considering the added value (CAV) and price acceptance has no influence on the EV CAR consumption trends. The results can be discussed as follows.

Social values (SOV) influenced the EV CAR consumption trends of people in Phra Nakhon Si Ayutthaya Province because EV CARs were a new production model. The use of modern technology created novelty and awakened the people who were highly interested in the advancement of the automotive industry. Most people believe that having the opportunity to use electric cars will affect their image in terms of being a technology leader, being environmentally friendly, and possibly driving other people's demand for electric cars as well. This was consistent with research [10] which found that overall image and product purchase behavior were in the same direction. The findings were consistent with research conducted [19] found that attitudes towards technology use influence on consumers' purchase decision for battery electric vehicles in Bangkok and vicinities.

Awareness of the quality of life (AQL) has influenced the trend of EV CAR consumption among people in Phra Nakhon Si Ayutthaya Province because people understand that if everyone turns to EV CAR, it will improve the weather and affect health. In addition, some EV CAR companies will produce smaller cars, making travel easier, faster, less congestion, and easier to find parking spots, which affects the mental state and quality of life. This was consistent with the research [14] which found that the factors of good health attitudes were positively correlated with the behavior of intention to consume significantly. The findings were consistent with the research [20] indicating that this is an important factor for consumers who use travel to facilitate their daily commute.

Environmental responsibility (ENR) had no influence on the EV CAR consumption trend of people in Phra Nakhon Si Ayutthaya province. Even if a person has environmental responsibility (ENR), it may not make it possible to choose an electric vehicle as most of them still have concerns and uncertainties about their quality. With the unfamiliarity, they may not believe that they can save the environment. Although EV CARs can help reduce dust, most of the power generation still requires oil to produce, which is a natural resource use. In addition, Phra Nakhon Si Ayutthaya Province had up to 5 industrial estates, which was one of the factors that caused environmental pollution. This was consistent with the research [15] which found that environmental marketing factors in terms of environmental label perception and quality of environmentally friendly products did not influence the incidence of purchasing behaviors of products that were eco-friendly for consumers.

Considering the added value (CAV) influenced the trend of electric vehicle consumption for people in Phra Nakhon Si Ayutthaya province. Due to the current situation, the price of fuel was quite high, affecting the cost of living in all aspects. Choosing an electric vehicle can help them save more on fuel costs and save on maintenance. EV CARs were more cost-effective when looking at long-term costs, in line with the research [16] who found that the price characteristics were appropriate for the quality. The findings were consistent with research [21], indicating that brand image affects consumers' purchase decision for hybrid cars in Thailand.

Price acceptance (PRI) had no influence on the electric vehicle consumption trend of people in Ayutthaya province. Although EV CARs were attractive to consumers, the current global and domestic economy was sluggish and the epidemic was the main reason for consumers to decide to slow down their EV CAR purchases first until the situation improves. Electric vehicle prices must be flexible according to economic conditions, resulting in price acceptance (PRI) for

people. This was consistent with research [17], which found that price had no influence on purchasing decisions, which was inconsistent [22] [23] who found that price variables had Influence on battery electric vehicle purchase decision.

VII. RECOMMENDATIONS

In the EV CAR consumption trend of people in Phra Nakhon Si Ayutthaya Province, the researcher gave suggestions from research and recommendations for future research as follows.

1. Recommendations obtained from research

1.1 From the research results, it was found that social values (SOV) influenced the trend of choosing innovative EV CARs. Therefore, government agencies or related persons should be involved in supporting consumers to be aware of the good image of using EV CARs, such as being praised as a model in terms of energy saving to convince consumers for increasing the interest in electric vehicles and entrepreneurs should accelerate to create awareness among consumers about the value and use of electric vehicles through more channels.

1.2 There should be proactive public relations to make consumers aware of the importance of a better quality of life by educating consumers about the benefits of switching to electric vehicles instead of using fuel that is good for everyone's health.

1.3 There should be a clear understanding with consumers about how good electric vehicles are for the environment and how fuel-powered cars will affect the environment for consumers to have environmental responsibility (ENR) by providing knowledge through various media.

1.4 Entrepreneurs must communicate and publicize the differences between electric vehicles and fuel-fuelled vehicles, what advantages, advantages, and special features that electric vehicles, but fuel vehicles do not have.

1.5 Due to the current global and domestic economic conditions, there is a stagnation causing consumers to slow down in purchasing electric cars. Entrepreneurs should promote more marketing by organizing marketing activities such as giving gold necklaces, giving electrical appliances to create more attractiveness for consumers to be interested in electric cars.

2. Suggestions for future research

2.1 There should be a satisfaction study of customers who have used an EV CAR, to compare how the value received is different from a fuel-powered vehicle, including the services of an after-sales service center for entrepreneurs to be able to plan their business further.

2.2 There should be an in-depth study with qualitative research by interviewing entrepreneurs and people who have already used EV CARs to study information, methods of use,

value, and benefits to gain valuable insights and further benefits to consumers.

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Development of a Learning Management Model for Enhancing Teenagers' Social Intelligence

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Abstract— This research aims to develop a model of learning management to enhance the social intelligence of teenagers. The specific purposes of this research were as follows: (1) to study the characteristics of social intelligence of teenagers in the context of Thai society; (2) to develop a model of learning management that enhances the social intelligence of teenagers; and (3) to study the effectiveness of a model of learning management to enhance social intelligence among teenagers.

The results of the research revealed that, in phase one, the characteristics of social intelligence among teenagers in the context of Thai society may be classified into four elements with eleven behaviors. Element one concerns coping with unfamiliar situations and two indicators. Element Two deals with communication with others, with three indicators. Element Three is about sincerity for yourself and others, with three indicators. Element Four is about accessing the feelings of others, with three indicators. In phase two, the learning management model is developed for non-formal education with the aim of enhancing the social intelligence of teenagers. The SEAR model has four steps in the learning management process: Step One: Stimulation; Step Two: Enhancement; Step Three: Application; and Step Four: Reflection. In phase three, the effectiveness of the learning management model found the following: (1) the results indicated that the learning management model enhances the social intelligence of teenagers. They have a level of social intelligence that increased over the experimental period with statistical significance at a level of .05; (2) the results of measuring the social intelligence of teenagers. They have higher levels of social intelligence before learning, according to a model of learning management that enhanced the social intelligence of teenagers with a statistical significance of .05

Keywords— Learning management model, Social intelligence, Teenagers

I. INTRODUCTION

At present time, the situation of Thai children and youth across the country have found Thai children and youth have imitated western values and lifestyles. Living with a silent culture, lacking identity, with aggressive behavior hidden in life. Early learning about gender; self-interest over the public, lack of morals and ethics, sacrifices for others [1] and [2] due to social and cultural changes. There are universal values in both the west and the east to imitate independent behavior Freedom to express yourself and needs, as well as rapid changes through the virtual world, resulting in less interaction with the real world. This is consistent with findings juvenile Thailand in the lifestyle that the lives of children and youth, Thailand, mainly with the use of online media to talk communication, playing games and social networking as a primary tools for interacting. In society as result as, face-to-face interactions have a reduced role, resulting in problems with conflicts stress when encountering situations in the real world. There is also a behavior Corruption committee.

[3] Those are parties results of the school management process. Teaching cannot create children and youth as individuals with knowledge, skills, expertise and competencies can be applied to life in society consistent with the problems of Thai education system in every aspect, such as too much content resulting in a focus on the transmission of academic content rather than on the development of desirable characteristics, including analytical thinking, pursuing learning and continually seeking knowledge, morality and ethics in the teaching and learning process. Teachers are unable to properly apply various teaching-learning styles to manage instruction. As result, teachers were teaching the learner by significant percentage of 50-60 only for the evaluation found. There is only one measurement in academic terms. But they can't enough measure behavior in various fields due to problems in practice because the above measurements are personal opinions and cannot be measured clearly [4] is consistent with assessment results of the 2015 PISA (Programmed for International Student Assessment). The education management system is not ready for promote students and can support creation of society. [5]

Which such problems Consistent with the concept of social intelligence is one intelligence that is important in human development as a person who is ready and coexist in society understandably each other Social intelligence is the ability of a person to understand himself others and society in terms of emotions, relationship other persons. Lead to interaction with others in every situation, behavior adjust to be in accordance with the situation, helping in society. Participation responsibility leading to the right behavior for society and able to happiness in society [6], [7], [8], [9] and [10]. In the future, social intelligence are important affects for children and youth. The youths, which forces of the nation being socially intelligent will succeed in driving the environment. Interpersonal relationships coupled with intellectual intelligence. Both people whom have skilled socially intelligent understanding other people, social situations sensitive by negotiating with people from different backgrounds, different cultures, which technology is unable to do. [11]

A study of research related to social intelligence in Thailand revealed that the social intelligence characteristics of teenagers have not been clearly studied and for the reasons mentioned above. The researcher had the idea of study the features social intelligence of teenagers because teenagers between the ages of about 12-15 are the most troubled due to hormonal fluctuations, stress from the environment and is the age that has the most problems This is due to inadequate communication with parents, teachers and others [8] and is also a preparation for teenagers to become adults in the future to live with others who have diverse in gender, age, personality, religion and culture, including the need to connect with other people for living and living in society including showing appropriate behavior It represents the social development of teenagers [12] and guideline for the concept of learning to continue, to strengthen the social intelligence of teenagers.

II. RESEARCH OBJECTIVES

The research aim to develop a model of learning management to enhance social intelligence of teenagers with specific objectives as follows:

1. To study the social intelligence characteristics of teenagers in the Thai social context.
2. To develop a learning management model that enhances the social intelligence of teenagers
3. To study the effectiveness of a learning management model for enhancing social intelligence teenagers.

III. LITERATURE REVIEW

Social intelligence

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Social intelligence (SI) or Social Quotient (SQ) is one of the most intelligence and important in the development of human and able to live together in society with mutual understanding. Social intelligence is the ability of a part person to understand himself, others and society in terms of emotions, behaviors of themselves and others. To lead interaction which others in every situation, change behavior to be in accordance about the situation, helping others in society. Participation in social responsibility leading to the right behavior for society and able to live in society happily [6], [7], [8], [9] and [10]

Developmental social intelligence

From the studies of documents and research related to Social intelligence database TCI at (Thai Journal, a Citation Index is Center) during the year 2012-2017 of 5 copies of the database ERIC (Education Research Information Center) during the year 2012-2017 of 6 issues original and. from the concept of social intelligence abroad during the years 1986-2011 of 7 volumes of the classified intelligence on social development. And the concepts of educators and psychologists can be divided into 3 groups as follows:

Group 1: The concept of early social intelligence

The concept of social intelligence in the first period (AD 1909-1920) was started by 3 educators and psychologists are: Dewey, who started the concept of social intelligence in the first year 1909, Lull, in the year 1911, Thorndike, in the year 1920, where the concept of social intelligence in the early days. That's just the ability to have social interactions. And social skills only while that era focused more on intellectual skills. As a result, social intelligence is not getting the attention it deserves [13] and [14].

Group 2: The concept of social intelligence developed from the concept of emotional intelligence.

The concept of social intelligence in this group caused by educators and psychologists who believe a person's success is not based on only intelligence. Due to social intelligence However, although emotional intelligence focuses on feelings in conjunction with rationality. But still lacking social interaction and social intelligence skills only. While at that time the emphasis on intellectual skills was greater, so social intelligence was not given the attention it deserved [9], [15] and [16].

Group 3: Integrated Social Intelligence Concept

The concept of social intelligence in this group developed from a combination of two or more concepts [2], [8], [17] and [19]. Which developed from the combination of intellectual intelligence concepts together with the concept of intelligent social educators and psychologists from the two or more concepts blended together form social intelligence. A study of the concept of social intelligence in this group found that

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many educators and psychologists use a combination of these concepts:

Marlowe, have developed a clever way out. Social intelligence together with intelligence in 1986, belief that Intellectual intelligence is essential to reasoning and problem-solving skills in the context of everyday life [19]

Tony Buzan, have developed a clever way out. Intellectual Intelligence Professor Robert Ornstein. Intelligence quotient are different. Different acts of Professor Howard Gardner. It is believed that. Smart people are able to manipulate the environment and interacting with everyone, whose brain and intelligence are related to every aspect of life [17]

Karl Albrecht, has developed the concept of social intelligence of Thorndike in the year 1920, has developed a concept of social intelligence. Intelligent 4 concepts include: 1) the concept of social intelligence of Thorndike of understanding and build relationships with others. 2) concept with the IQ of David Wechsles and the brilliance of a variety of Howard Gardner which focuses on intelligence various fields of human and believed that the individual has the ability to vary 3) the concept of emotional intelligence of Daniel Goleman which focuses on emotional control, and 4) The concept of intelligence ethics cause the intelligence community a new so-called SPACE includes Situation awareness, Presence, Authenticity, Clarity and Empathy. [8] Esther, N. Goody have developed social intelligence from the intelligence community. together with intelligence in 1995 with the belief that Socio-cultural differences such as dialects, cultures and interactions based on intelligence and social interaction which leads to social intelligence [21].

IV. RESEARCH METHODS

This study is conducted in the form of research and development, which has 3 phases as follows:

Phase 1: The characteristics of social intelligence among teenagers in the context of Thai society, which has 3 step as follows:

Step 1. Documentary Research Study and analyze data from concepts. Theories of social intelligence database TCI (Thai Journal Citation Index Centre) during the year 2012-2017 of 5 copies. From database ERIC (Education Research Information Center) during the year 2012-2017 of 6 issues. And from the intelligence community abroad during the years 1986 to 2011 of 7 volumes.

Step 2. In-Depth Interview features a clever social context of a teenager in Thailand. Children and Youth National Outstanding Branch amoral moral and ethical level since 2015-2018 of 11 people selected by purposive Sampling with the Snow Ball Sampling from the results of the national award of outstanding children and youth in the field of morality and

ethics at the national level with the following selection criteria:

2.1 Children and youth aged 12-15 years

2.2 Received the National Outstanding Child and Youth Award in the field of morality and ethics.

2.3 Being a person with outstanding characteristics in doing activities the nature of the activities that are done is close to social intelligence, consisting of being honest, well-behaved, ethical, devoted to the benefit of the public. By studying the history and portfolio

Step 3. Interpretation and Meaning

3.1 Gathering information from the interviews according to the specified issues. Organize information interpret by Significant statements obtained from the interview into categories.

3.2 Check the reliability of the information, consisting of:

3.2.1 Data Triangulation with proven data through manual research is correct or not. The sources to be considered in the audit include different sources, times, places, and people. But got the same information

3.2.2 Methodological triangulation using the method of collecting data. Collect different information to collect the same information both collecting information from documents and interview

3.2.3 Theory triangulation using the theory referred from related papers and research as a monitoring tool

3.3 The data obtained from the in - depth interview was compared with the data obtained from the study of documents and related research in step 1 leads to the conclusion of social intelligence characteristics of teenagers in Thai social context.

3.4 Summarize the social intelligence characteristics of teenagers. Came to form a behavior indicating social intelligence of teenagers and check the behavior the indicators of social intelligence of teenagers by 3 experts in psychology to check the validity of the interpretation by Index of item Objective Congruence (IOC) and adjusting according to the recommendations of experts.

Phase 2: Development of a learning management teenagers' social intelligence. This is the application of the social intelligence attributes developed in Phase 1 to design learning management for the development of social intelligence of teenagers. The operation is divided into two steps as follows: Step 1: development model to enhance learning. Build social intelligence of teenagers as follows:

1. Apply the social intelligence attributes developed in Part 1 to design learning management for the development of social intelligence of teenagers, together with the concepts, theories and principles related to social intelligence. The teens are making a wise society based on the concept of Albrecht is a

key concept in the design style of learning. Together with social cognitive theory, Participatory Learning (PL) and Active Learning.

2. Select content and the media used in organizing teaching and learning activities which the selection criteria are as follows.

2.1 It is suitable for teenagers aged 12-15 years.

2.2 Content and media which is consistent with the problems and daily life of teenagers

2.3 Content and media used are categorized as creating morality, ethics, promoting life. And create society

3. Prepare a manual on how to use the learning management model to enhance the social intelligence of teenagers. which is a document that describes the history Elements of teenagers social intelligence Steps for enhancing social intelligence of teenagers and methods of measurement and evaluation consisted of: 1) Problem conditions and necessities 2) Principles of the learning management model 3) Objectives of the learning management model 4) Time spent on learning activities 5) Activities of learning management model 6) Guidelines for organizing learning activities 7) Behaviors indicating social intelligence of teenagers 8) Plans for learning management activities and 9) Measuring and evaluation tools.

4. The draft learning management model for enhancing social intelligence of teenagers was presented to 5 experts, Consider the appropriateness of the composition. And the steps of the learning management model to enhance the social intelligence of teenagers. Consisting of 2 teaching and learning experts, 2 psychology experts, and 1 measurement and evaluation experts.

Step 2: Pilot study is a system of learning to enhance the social intelligence of teenagers that are similar to the population and the sample which is a teenager between the ages of 12-15 years living in the community of Huai Pong Sub district, Nong Phai District, Phetchabun Province that are not the sample and nearby area voluntarily participate in research projects and signed a letter agreeing to participate in the project, totaling 10 people to find out the practical feasibility of the learning management model, as well as the problems and obstacles before it can be applied in practice in 5 aspects according to the elements of the learning management model: 1) Activities 2) Duration 3) Language used in social intelligence training 4) Media and learning resources and 5) Measurement and evaluation.

Phase 3: A study on the effectiveness of a learning management model for enhancing social intelligence. Conducting an experiment on a learning management model to enhance the social intelligence of teenagers This research was conducted among teenagers aged between 12-15 years

living in Huai Pong Sub-District Community, Nong Phai District, Phetchabun Province, which was a Volunteer Sampling , teenagers who voluntarily entered participate in research projects and signed a letter of consent to participate in the project of 20 people conducted in a Quasi-Experimental Research method using Time-Series Design. Divided into 2 phases, 1) prepare and assess the intelligence community before implementing the curriculum. It takes time to prepare a 3 hours period. 2) learning-based model of learning to enhance the brilliance of the social teenagers forms SEAR model (Stimulation-Enhancement-Application-Reflections) take on. 12 week trial, 3 hours each, measuring social intelligence every 4 weeks, for a total of 3 sessions.

V. RESEARCH RESULTS

In this study, the researcher was able to the results of the data analysis were divided into 3 phases as follows:

Phase 1: The characteristics of social intelligence among teenagers in the context of Thai society, divided the analysis into 2 parts.

Part 1 Qualitative Data Analysis The research leading feature of Documentary Research together with in-depth Content analysis interpretation conclusion Inductive classified intelligence community. Teenagers in the context of Thai society have 4 elements, 11 behaviors indicating as follows:

Element 1: Facing unfamiliar situations refers to the behavior that expresses attention and understand what is happening around from the social environment and the nature of the behavior of a person, both emotional and through the cognitive process, which consists of 2 behavioral indicators:

1. Interesting and understanding the surrounding environment
2. Making choices about the situation that arises.

Element 2: Communication with others means behavior, expression. Communicate with others through the verbal and nonverbal language with as a result the drug as friendly and take into account the rules of the society consists of three behavioral indicators include: 1. Communicate with other languages to others. Understand emotions, thoughts, feelings and which one wants. 2. Communicate with others politely. Do not deceive or seek benefits 3. Communicate with others in a language that complies with social rules.

Element 3: Sincerity to oneself and others, refers to behaviors that express decision-making and solve problems in different situations by choosing the right action including being responsible for what they do and building relationships with others with sincerity consists of 3 behaviors that indicate 1. Choose to do the right things. 2. Take responsibility for what you do and 3. Build a relationship with others sincerely.

Element 4: Approaching the feelings of others refers to the behavior that expresses understanding others' feelings,

accepting and respecting other people's thoughts, attitudes and values it consists of three indicators: 1. Understanding others' feelings, 2. Respecting others' thoughts, attitudes, values, and 3. Inspiring others.

Part 2 Quantitative Data Analysis, Examination Results, Draft Behavior Indicators of Social Intelligence of Teenagers in Thai Social Context by 3 psychology experts to check the Validity of Index of Item Objective Congruence (IOC) is 1.00.

Phase 2: Development of a learning management teenagers' social intelligence. The results of the data analysis were divided into 2 steps as follows:

Step 1: development model to enhance learning. Build social intelligence of teenagers. the data analysis is divided into 2 parts:

Part 1: The results of Qualitative Data Analysis the results of Documentary Research together with in-depth interviews Phase 1 design patterns learning to strengthen the intelligence community's youth. The teaching activities are divided into 2 phases as follows:

Phase 1: Preparation it dissolves the behavior of the learners. For learners to know familiar with each other there is acceptance of each other, assertiveness lead to teamwork. The duration of the event is 3 hours.

Phase 2: Entering a learning management model to enhance social intelligence of teenagers it consists of 4 steps of learning management.

Step 1: Stimulation is the stage to stimulate the learners. So that students are interested in what they are learning

Step 2: Enhancement is divided into 3 sub-stages: 2.1, Observe the situation. It is the stage where the teacher presents the situation to the students. For students to brainstorm together in observing the model's behavior, 2.2 The emotional level is the stage where learners brainstorm together to describe the incident. 2.3 Finding an alternative stage is the stage where learners brainstorm together to decide how to act in that situation

Step 3: Application is the student and the teachers together summarize what they have learned. To apply to similar situations

Step 4: Reflections was downgraded to learners who have learned all. By explaining their thoughts and feelings about what they have learned

The nature of each activity will have content about different situations for learners. Observe the models from play and from reading the given passage to know the condition of the problem from actual situation in society and daily life, assertiveness, interacting with others, knowing the process of working in groups, accepting and listening to others based on individual differences, and integrating a wide range of

knowledge and skills to link them into effective practices consistent with real-life situations The duration of the activities was 12 weeks, 1 day per week, 3 hours per day, including 2 phases, totaling 39 hours.

Part 2: The results of quantitative data analysis are divided into 2 sub-sections as follows:

2 .1 Assessment of the appropriateness of draft learning management model for enhancing social intelligence of teenagers Five experts found that the learning management model for enhancing social intelligence among teenagers was between 4.60-5.00 and the standard deviation was between 0.00-0.40.

2 .2 Assessment of the coherence of draft learning management model for enhancing social intelligence of teenagers Experts of 5 people with Index of Item Objective Congruence (IOC) found that an average of 1.00 then each standard deviation of 0.00.

Step 2: pilot study

By adopting a learning management model to enhance the social intelligence of teenagers developed Pilot study was conducted with teenagers who were similar to the population and a sample of 10 people to determine the practical feasibility of the learning management model. Before being put into practice the experiment taught fourth event activity per 1 week found.

1. In terms of activities, it was found that teaching and learning activities were diverse. Suitable for learners Able to perform various activities as specified

2. In terms of time, it was found that the time spent on teaching and learning activities was insufficient, should be adjusted to increase the duration according to the teaching activities. So that the duration is appropriate for the teaching activities and allowing learners to perform part-time learning activities

3. On the language aspect, it was found that the learners understood the language used in the teaching activities exercises. Can answer questions and perform various activities as specified

4. Media and learning resources it was found that the learning media that was reading from the story content was quite difficult, the students were not able to read the book. Causing problems during the event Teachers improved the problem by having students with reading abilities volunteer to read the contents of the activity to their classmates. And improve the content of the reading activities to be more concise as for the learning media, which is a video, learners understand the subject matter. Be appropriate and the media organized in learning management activities can promote learners to achieve their objectives and defined behavioral indications

5. In terms of measurement and evaluation, it was found that it was appropriate. Able to measure and assess students' results comprehensively and according to the purpose and defined behavioral indications

Phase 3: A study on the effectiveness of a learning management model for enhancing social intelligence. the data analysis is divided into two parts:

Part 1: Quantitative data analysis, is divided into 2 sub-sections as follows:

1.1 Results of learning management a learning management model that reinforces the social intelligence of teenagers on learners during the experimental period, as assessed by the Social Intelligence Scale of the 4 elements of the generation, is component 1, facing unfamiliar situations. Component 2 is communication with others. Component 3 is sincerity with oneself and others. Component 4 accessing the feelings of others. The assessment was conducted before the start of the learning management, during and at the end of the learning management, 4 times, using a 3 segment measurement. The learners self-assessed friend as evaluator and teachers to evaluate students' mean scores intelligence community over a period of experimentation with different levels of statistical significance. 05.

1.2 Results of learning management a learning management model that enhances teenagers' social intelligence towards learners before and after learning management by assessing from The social intelligence measure assessed the social intelligence of teenagers on all 4 elements: Component 1 facing unfamiliar situations. Component 2 to communicate to others the care assembled at Component 3 sincere to themselves and others Component 4 accessing the feelings of others by making an assessment before starting the learning management and at the end of the learning management, with a 3 point measurement, the learners self-assessed friend as evaluator and the teacher was the learner's assessment. It was found that the average score of social intelligence before and after the learning management. There was a statistically significant difference at the .05 level.

Part 2: The qualitative data analysis revealed that the model of learning management for enhancing social intelligence of teenagers in SEAR model (Stimulation-Enhancement-Application-Reflections) It reflects that the 4 stages of learning management process and 13 learning management activities can develop social intelligence of teenagers and in order to apply the developed learning management model to be more effective. In learning management, teachers should get to know each other and observe the behavior of learners before teaching activities to stimulate and observe the development of learners during

learning activities and teachers should increase the time to do some activities that allow learners to practice in real situations

DISCUSSIONS

The researcher divided the discussion issues into 3 issues according to the research objectives as follows:

1. A study of social intelligence characteristics of teenagers in the context of Thai society. The results of this study were divided into four components as follows:

Component 1: Coping with unfamiliar situations is the behavior of teenagers showing interest and understanding of what is happening around them from the social environment and the nature of the person, both their emotions and thoughts. Through the intellectual process which is consistent with the country change model called Thailand 4.0 according to the 20 year national strategy by modifying the learning process from learning with an emphasis on theory. It is a learning that focuses on analysis and problem solving [20]. It is also consistent with the problem solving and conflict among teenagers, which is partly due to lack of listening to reason, lack of expertise in solving problems. Affects life, happiness and success in life [21]

Component 2: Communication with others, was the behavior of teenagers in communicating with others through verbal and non-verbal communication with friendliness and taking into account social rules which is consistent with the context of Thai society that has been dubbed by many countries as "Siam Land of Smiles" or "Siam Smiles" is a communication that makes the other person feel warm. Including helping with hospitality Kindness is a signal of friendship. Which shows their sincerity with each other and is a unique cultural identity of Thailand [22] and [23] for this element to focus on the use of language to communicate with others. Because language is necessary and is of great importance for communication and a medium for building friendships and relationships with others

Component 3: Sincerity to oneself and others, is the behavior of teenagers in their decision-making and solve problems in different situations by choosing the right action including taking responsibility for what they do and build relationships with others with sincerity, consistent with the report "Thai people" monitor found that the lifestyles of Thai youths still have behaviors of corruption, such as copying a friend's exam. Signing on behalf of a friend Giving money to police officers to avoid a ticket Bribery and Voting Rights Which is seen as a common thing and is an act that is not very wrong or not at all so in the issue of being responsible for what one does. It will help teenagers to differentiate between what should and should not be done. Including being responsible for solving problems in what they do as well.

Component 4: Access to other people's feelings, is the behavior of teenagers' expressions of understanding others'

feelings, accepting and respecting others' thoughts, attitudes, and values and inspire others which is consistent with [28] which has been mentioned about accessing the feelings of others. Those are the basic skills and techniques of acceptance and trust gives you the courage to reveal yourself and behavior change There are 3 important elements: 1) Sincerity, If the more sincere you are. It will only change a lot. 2) Unconditional acceptance which must show a good attitude unconditional recognition, not assessing, not judging the feelings and thoughts of others. 3) Empathy. It truly shows understanding of others. They can express feelings such as joy, anger, fear, and love. These feelings help us and others understand each other better also, inspiring others. It is also consistent with [25] that inspiration is the key to success in many areas of life impression from the subconscious or other experiences used to influence ideas including bringing inspiration to continue to develop and develop creativity

2. Development of a learning management model to enhance social intelligence of teenagers. The researcher developed a learning management model divided into 2 phases as follows: Phase 1: Prepare. This is the stage where teachers build familiarity with each other. between students and teachers and between learners and learners themselves by way of talking creating an atmosphere for students to relax and to dissolve the behavior of learners so that learners and teachers know and become more familiar with each other learners accept each other know how to be assertive The teacher explains the objectives of the learning activities and measures the intelligence of the learners before entering the learning management model. To lead to Phase 2, and at this stage is consistent with Bandura's Social Cognitive Theory in the Motivational Processes, which is for humans to learn, be able to show and behave. It will come out depending on the incentive process. Incentives and processes, depending on the composition of a distraction from the outside, which will raise awareness is tangible is something that is accepted by society and behaviors that follow that model [26]

Phase 2: Learning Management Model (SEAR model) that the researcher has created. There are 4 steps of learning management as follows:

Step 1: Stimulation is the stage which the teacher motivates the students to be interested in situation. They are learning with a narrative method that instructor has experienced, or from encounters situations in everyday, from news or movies, or stimulated by following up on the evaluation results from the past week's activities. How to learners change themselves for learners to be interested in? What they are learning which the stimulation stage is organized to arouse the interest of the learners wanting to learn and lead to access to lessons or what the students want to learn next The activities at this stage,

according to Social Cognitive Theory of the Institute of Bandura about the Motivational Processes and the Action a Learning is taking place. Individuals will learn and show that behavior it depends on the incentive process. And the process of motivation depends on the element of external temptation to stimulate perception. Which is tangible is accepted by society and behaviors that follow that model [26] which are very important in the learning management process. Because these are activities that will make the learners curious. or have motivation to study which the teacher must use techniques or activities to make students interested and would like to follow the information that the teacher will present, and also found that the structure of activities introduction into the lesson. To be good create familiarity between the teacher and learner. It is a link to the subject to be teach. As a result, students are ready to learn. And to draw the attention of students to the subject to be taught the preparation activities for teaching are like appetizers. Before starting the main meal to help the students taste food to eat the next [27] This is consistent with the concept of John, M. Keller the design inspiration for. Efficient learning discusses the concept of motivation theory as a bridge to successful action steps, i.e. every successful practice. All from motivation which good motivation encourages learners to learn effectively and succeed

Step 2: Enhancement is the stage where the teacher enhances social intelligence for learners divided into 3 sub-stages as follows:

2.1 Steps to observe the situation It is the stage where the teacher presents the situation to the students. Then have students brainstorm together. By observing the relationships seen in communication, language use, situational observations are organized to allow learners to observe the actions of the models in the video. and taking into account the feelings with the given situation This is consistent with the principles intelligence community to the idea of Albrecht on how to create Situational Awareness began by noting the relative level of the situation seen from the TV. or from the movie to observe the relationship How to communicate, roles, and then learn about self-discovery contexts. and then practice the language signals that are used to build relationships with groups of people at different levels [8], which Albrecht's concept of social intelligence is consistent with the theory of Social Cognitive Theory in the self-regulation that believes that Our human behavior is not the result of reinforcement. and only external punishment But humans can do certain things to control their thoughts, feelings, and actions. called self-direction This self-regulation at the observation stage is consistent with the self-regulation mechanism. In processes 1 and 2, as follows: 1) the process of self-observation, observing one's own actions, and 2)

Judgment Process is the application of information obtained from observations into the decision-making process. based on the assessment of social reactions [26].

2.2 Steps to describe feelings This is the stage where students brainstorm together. Explain what happened in the event. What did the person do, what did they say, what did they feel, what did they think, and how did the group members feel about the given situation? in which the situation was observed So that students can understand the feelings of the model. and understand the reason why the model acted This is consistent with the principles intelligence community to the idea of Albrecht way of Presence by searching for a natural way to express yourself, [8] which. This research was done by watching videos and asking students to write a description of the situation that occurred, who did what, where, how and how the learners felt. to describe the feeling and self-expression The principles for building social intelligence according to Albrecht's concept are also consistent with the Participatory Learning Theory in Step 2. Considering the Experience. Learners will describe the experience as what happened. What did the person do, what did they say, what did they think, and how did they feel about the experience? How do you feel about the person in the experience? How important is this event to us? And is there anything that we still don't understand in that event? Which exchanging experiences will help learners to connect things together and also in accordance with the Social Cognitive Theory of Bandura in the mechanism of self-directed process 3 is a reaction to self-reaction into the implementation of the results of the assessment and the decision to display or treat themselves [26].

2.3 Steps to find alternatives It is the stage where learners bring their observations and brainstorming sessions to share their learning experiences within their own group and brainstorming in deciding how to act in such a situation How to communicate correctly and appropriately to the situation you face along with explaining the reason and let learners choose a method for presenting the results of brainstorming together. Which is up to the learners to agree then presented to convey the guidelines for their practice which step to find alternatives it is organized for learners to apply what they have observed from such situations. Let's brainstorm together and make decisions on how to behave yourself in that situation and exchange learning, listening and accepting the opinions of others which is consistent Participatory Learning Theory used in the analysis experience. It is the stage where the learner tries to understand the experience in depth. for learning and truly understand the experience [28] . And apply knowledge to new situations In which the teacher must give students the opportunity to find different ways to solve

problems. and there may be interfering activities during the teaching To provide learners with knowledge, skills and attitude [35]

Step 3: Application is the stage where learners apply what they have learned from practice to practice in a new situation that is close to the previous situation learned by role play, let learners share their learning. and summarizes what has been learned from the new situation. which the application stage is organized for learners to apply the knowledge gained used in each step with the new situation that is similar to the old situation This is consistent with Participatory Learning Theory and the theory of Social Cognitive Theory is to give the students an experience of roll formed, compare it with other experiences, a summary of lessons that relate to real life, bring lessons to be applied to check the guidelines in practice and put into practice Including monitoring of implementation practices [26] and [28].

Step 4: Reflection is the stage which learners must reflect on all what they have learned with their own thoughts. by explaining the idea and express their feelings about what they have learned, such as the knowledge that the learner has received feeling in teaching and learning What students will use to improve and develop themselves, additional comments from teaching, learning management for teachers to improve and plan for the next time. The reflection stage is organized so that students can reflect on what they have learned. In order to review what we have learned together and allow learners to apply the knowledge they have received to improve themselves Which is consistent with the Participatory Learning Theory in the 7 steps are the evaluation and follow-up support. in which learning management will be evaluated Before-During-End and after the process has passed for a while to follow up and encourage learners to apply the learning outcomes to use continuously [28] These processes of reflection are also consistent with Action Learning in closing activities that make learners remember. Not forgetting to organize teaching activities who spent the rest of the hour to give students the opportunity to complete by reflecting on what was learned and express feeling at the end It's like eating an appetizer, a main dish, and ending with a dessert. will make the diners feel happy as well as learning management When students are encouraged to learn with activities brought into the lesson. Presenting content activities, the last activity the teacher should do It is a review activity that makes the learners remember and never forget. or giving learners a dash of self-planning for the future and expressing opinions to reflect what learners received [27].

3. The effectiveness of the learning management model for enhancing the social intelligence of teenagers

The study of the learning management model to enhance the social intelligence of teenagers created by the researcher has been learning management process according to SEAR model. This form is learning management, there are tools used to train social intelligence among teenagers, including preparatory exercises. and social intelligence exercises and then check the learning outcomes from the behavioral observation form in class. Monitoring of learners' behavior from the Student Behavior Tracking Form Together with the lessons learned by Story Telling through Focus Group Discussion, in-depth interviews and measures the effectiveness of the arrangement.

Learning from the Social Intelligence Scale every 4 weeks showed that the learners developed an increase in social intelligence with the duration of learning disabilities. Have self-development all the time I feel fun and happy every time I organize teaching activities. Which is consistent with the work of the brain, found that learning is a process of connection of different neurons, enabling the transmission of nerve signals to connect to each other. It was found that one main brain cell was linked to other brain cells by laying the brain fibers linked together. and have connected points show that learning It was also found that the learning management process was happy. affect the functioning of the brain and chemicals in the brain as well That is to say, learning will take place well. If it is in a happy state, not stressed because when learning happily There will be chemical changes in the brain. which secretes chemicals that are substances related to happiness, memory, enthusiasm This will be the power to make you want to learn more things and is the source of the learning management process that focuses on fun. in a friendly atmosphere Let the children learn according to their own development without stress or pressure. It will help promote the ability of learners to manage learning. Encourage students to pay attention falling in love with what you're learning to make the students happy and happy, It is secreted in brain chemicals such as dopamine, norepinephrine make happy and increase the learning process in the brain [29] and also found that parenting It has a positive effect on the brain on social intelligence, raising children and teenagers to experience. Improve life skills have taken care of or appropriate stimulation early in life will have good development. Parenting can reduce a child's aggression and anxiety, and by cultivating important skills, children can adapt to obstacles and pressures as adults [30].

VI. CONCLUSION

Development of a learning management model for enhancing social intelligence of teenagers This time, the researcher built upon a combination of concepts, principles and theories under

the belief that social intelligence of teenagers It can be developed by managing to learn from real-life situations. together with the modification of the learning management process to be in line with the 4 learning principles: learning to know, learning to practice, learning to live together and learning for life by modifying Passive learning to active learning. The transformation of learning in the classroom, in the school and in the system is learning outside the classroom, outside the school, outside the formal, changing learning from facts. It is learning that begins with the use of thinking. Modify the transcribed learning It's a guided lesson. and learning modifications to cultivate a public mind taking the common interest, It emphasizes the common interest. Emphasis on creating shared values The change in the learning management process also allows learners to apply the knowledge gained in real situations, can solve various problems and obstacles that will be faced in the 21st century by applying the principles of social intelligence building according to Albrecht concept as the main guideline in the design of learning management models. together with learning theory, which consists of Social Cognitive Theory of Participatory Learning (PL) and Active Learning to create a learning managements to enhance social intelligence. Teenagers' society, SEAR model, has 2 phases of learning management process: Phase 1: preparation is building familiarity between learners and teachers. and dissolve learner's behaviors. Phase 2: learning management SEAR model is the process of building social intelligence of teenagers. It consists of 4 steps. Step 1: Stimulation is a step. to motivate the learner's attention to the situation was to learn. steps 2: Enhancement was downgraded to develop key skills for enhancing the intelligence community step 3: Application is summarize what has been learned and apply what has been learned to new situations that are close to the original situation, such as role play, concept mapping, and participation in activities in real situations. step 4: Reflect on what they have learned and applied. and apply the knowledge gained to self-development

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The capacity building model of network partners in Phra Nakhon Si Ayutthaya province to drive agricultural tourism

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Abstract— This research has the objectives to propose a model for capacity building in network of Phra Nakhon Si Ayutthaya province to drive agricultural tourism. The study was conducted with government sector, private sector, farmer sector, community enterprises, local philosophers in the areas of Phra Nakhon Si Ayutthaya province. The tools of the study comprised the in-depth interviews, small group meetings and questionnaire to analyze the potential of network partners in every regions in order to select a pilot area to develop a model for capacity building in the agro tourism network of Phra Nakhon Si Ayutthaya province together with the use of satisfaction assessment form for the main parties from participating the network of agro tourism groups.

From the study, it was founded that the network partners in each sector had the work that is in accordance with one's mission only. That is, the work or budget allocation is sometimes redundant and also lacks of integration with other agencies. As for the management of agricultural tourism, every sectors still considerably lacks of knowledge and understanding of management. Every sectors therefore wants to have a central unit to work as a co-ordinator. A model for enhancing the capacity of partners in the agricultural tourism network must begin with the mechanism used to drive the performance consisting of government sector, private sector, farmer sector and academic sector that must cooperate as a network and integrate the collaborative work according to the main mission of each sector including the capacity of each office to help each other in driving the network partners to their destination. The capacity building model that will enable network partners to develop skills in agro-tourism management is training, fieldtrip study, exchanging knowledge, hands-on practice and evaluation of agricultural tourism activities in the area.

Keywords— Capacity Building, Agricultural Tourism, Network Parties

I. INTRODUCTION

Agricultural tourism is considered as another form of Alternative Tourism or Niche Tourism (Robinson and Novell, 2005, p. 9) which is the current trend of tourism that tourists are more interested in today. It is a form of agricultural tourism occurring in many countries such as Australia, USA, Canada, Philippines and Thailand because Thailand is an agricultural country with a variety of occupations in agriculture, have agricultural wisdom and famous for its fruit trees, rice, advance fisheries and livestock activities since the past. Such diversity will attract and cause a good impression on tourists, provide opportunities for them to join activities with farmers to experience the natural environment, agricultural lifestyle that combines religious activities, arts, culture and traditions, as well as an education to learn, exchange experiences and find the process of working closely with right livelihoods and also increase income distribution to the locals. The research conducted by the United States Department of Agriculture (USDA) in the United States (University of Tennessee, 2005)

found that the reason tourists visit rural or farm tourism is to see rural scenery, to learn about the source of food, to visit relatives in other provinces, to see and participate in farm production or agricultural activities, to buy agricultural produce, to collect fruit, to do hunting or fishing, and to stay overnight in rural areas.

Phra Nakhon Si Ayutthaya province has interesting tourism activities with various sector involving in promoting tourism in the area including the government sector, private sector, public sector and various groups in the area that formed a tourism network to develop and promote tourism at the local level. However, the purpose of integration for development has not yet been achieved due to different network groups having different competencies to promote spatial tourism as well as unclear and inconsistent approaches with the spatial tourism develop. Researchers and stakeholders therefore wish to study the model for strengthening network partnerships in Phra Nakhon Si Ayutthaya province to drive agricultural tourism, upgrade agricultural products by using tourism activities as a tool to increase income, reduce the problem of falling price products, reduce trade through intermediaries, create pride among farmers and their children in the future for their

farming career, encourage farmers to learn and develop communication and create local jobs that prevent young workers from working outside the area. However, good sustainable tourism management cannot be undertaken alone or by any other agency. Hence, it has to rely on various sector such as partners, networks, public sector, private sector, communities, community enterprise groups as well as those who are involved both in the area and outside the area to take part in the management and joint development plans to drive agricultural tourism to achieve the goals of the government policy. (Thanaphum Pongsangiam, 2021)

II. RESEARCH OBJECTIVES

To study the capacity building model of network partners in Phra Nakhon Si Ayutthaya province to drive agricultural tourism

III. LITERATURE REVIEW

In English language, there are words to describe a person's ability and competence to perform tasks as "capability" and "competency". In this study, "ability" is used in place of "capability" whereas "competency" is used for "potential". However, the translations in dictionaries often provide similar translations. For example, Oxford- River Books English –Thai Dictionary (2006) defines "capability" as ability, potential, and "competency" as ability as well. But for the English academic writings, scholars have described the meaning of the two terms as being related but not the same thing (Seepann Supthong, 2020).

Capability refers to the quality of competence and the potential to develop oneself and be able to work in the environment of the future world. It is therefore a characteristic that consists of knowledge, skills, quality and potential of a person (Nagarajan and Prabhu, 2015). It is also an ability that gives a person the flexibility to adapt himself, as well as be able to create new knowledge and continually develop their abilities until leading to the success of the mission. This person's ability is fundamental to the development of potential (Nagarajan and Prabhu, 2015, p. 8) necessary for productive work. Including the creation and development of work to achieve outstanding results

Competency refers to the hidden inner character of individuals that can drive them to perform better or achieve results on a predetermined basis (McClelland, 1973, p. 2). This is line with (Boyatzis, 1982 p. 58) who stated that competence is inherent in the person, which determines the behavior of individuals in meeting job requirements under organizational environmental factors and makes individuals committed to the results they need. In addition, Mitrani and Fitt (1992, p. 11) also described competency as a character trait linked to productivity or performance, as did Spencer and Spencer (1993, p. 9) described competency as a trait of individuals with a better cause-and-effect relationship to the effectiveness of their performance.

Current concepts of capability and competency for information professionals are: Must be a person who has "capability", that is, capable and has the potential to develop himself in accordance with and be able to work in the environment of the future world. It is a feature that consists of knowledge, skills, qualities, potential of a person. It also gives people the flexibility to modify themselves. Capacity is also able to create new knowledge continuously, develop talent and still need to have "competency" which is a group of behavior of individuals in performing their work to be successful. Moreover, competency is a behavioral attribute required by an organization by assuming that if personnel behave in a manner that the organization has set, it will result in the organization achieving the goals and missions set (Office of the Civil Service Commission, 2010, p.1).

Capacity building (Zamfir L., 2017) is a core concept of development policy. The notion that strengthening the capacity of individuals and institutions in developing countries is crucial for the success of development policy emerged gradually, with the theoretical debate reaching its peak between 1995 and 2005. Development approaches based on the notion of capacity-building were introduced to make up for perceived shortcomings in the development aid and technical assistance provided by major international donors since the 1950s. These included lack of ownership by recipients, incapacity to effect sustainable change, lack of inter-sectorial coordination, and insufficiently tailored-made approaches. Although capacity-building is still widely used, a new term has been coined – 'capacity development' – and this has become the favored choice of the development community. While 'capacity-building' suggests building something new from the ground up, according to a pre-imposed design, 'capacity development' is believed to better express an approach that builds on existing skills and knowledge, driving a dynamic and flexible process of change, borne by local actors.

Pongsarun Pollsriert (2012) mentioned capability as competency or organizational capability derived from the collaborative process of personnel in the organization through the use of knowledge, skill, trait, social role, self-image, motive, experience and abilities of each person, which is competency. That means, the organization to be a high-capacity organization must have high competency people first. Also, the organization must have the ability to coordinate and integrate the competencies of all departments into one (Integrated Competencies). This will create synergies or synergies to cooperate in implementing strategies to achieve the vision of the organization. Atchara Lortrakul (2014, p. 57) stated that competency are knowledge, skills, abilities and characteristics that make a person work well. It enables individual to perform work with quality, efficiency and effectiveness. Competency also refers to knowledge, skills, abilities, attitudes, values, motives including personal qualities that have been shown behaviorally influence success

which can be categorized as core competencies, performance by line of work.

In summary, competency is a characteristic of a person's ability to express oneself in a behavioral way that results in a person's performance. It can be measured and seen from the behavior that expresses knowledge, skills and related attributes. Competency may be caused by operations training and development and then affect the behavior, personality, attitude, values of the work effectively leading to the performance at the point according to the objectives set by the organization.

Capacity building model

Creating a performance model: the core competencies required to perform the work consisted of 10 competencies as follows: 1) Expertise; 2) Achievement Motivation; 3) Communication and Coordination; 4) Teamwork; 5) Service Mind; 6) Ethics; 7) Leadership; 8) Planning and Management; 9) Creative Thinking and 10) Holistic vision (Wittaya Chansiri, 2008, p.28) there are 9 techniques for competency development: 1) Workshops; 2) Training; 3) Lectures; 4) Organizing activities; 5) Management games; 6) Recreational activities; 7) Role playing; 8) Brainstorming and 9) Field trip study. This is in line with the concept of Aphon Phuwiththayaphan (2008, p. 196) who stated that the competency development approach has many methods that administrators can use as development tools and that many organizations often use, including: 1) On the Job Training; 2) Coaching; 3) Consulting; 4) Job Rotation; 5) Activity; 6) Self-Learning; 7) Visiting; 8) Meeting and Seminar; 9) Continuous Studying; 10) Counterpart; 11) Job Enlargement; 12) Job Enlargement; 13) Job Shadowing and 14) Mentoring.

Competency of the Agricultural Tourism Networks

Bureau of Tourism Development (2010, pp. 50-53) set the quality standards for agricultural tourism attractions in order to enhance the quality of agricultural tourism attractions for communities to be able to develop agricultural tourism to meet the standards set by the Office of Tourism Development that must have the capability to implement all 4 components as follows:

Component 1: The management potential of agricultural tourism sites means the capacity to operate, plan, supervise and manage tourist sites to be sustainable.

Component 2: The carrying potential of agricultural tourism sites means the readiness to provide basic services for tourists that are suitable for the environment of the tourist destinations. It is also an element that helps to enhance the impression of tourists.

Component 3: The service potential of agricultural tourism sites means the capacity to create value for the products served within the tourist attractions.

Component 4: The attraction potential of agricultural tourism attraction means the capacity to impress tourists.

IV. RESEARCH METHODS

1. Population and sample

The population and sample group in this research were stakeholders of all sectors as key contributors in research including: 1.1 15 people from the government sector chosen by purposive sampling method as follows:

- 1) 6 people from Ayutthaya Provincial Community Development Office comprised of provincial community development and district community development.
- 2) 1 person from Ayutthaya Tourism and Sports Office
- 3) 1 person from Tourism Authority of Thailand Phra Nakhon Si Ayutthaya Province
- 4) 1 person from Ayutthaya Provincial Administrative Organization Tourism Promotion Department 1 person
- 5) 6 people from Provincial Agricultural Office consisted of provincial agriculture and district agriculture.

1.2 12 people of community leaders / farmers groups / community enterprises and people in the area chosen by purposive sampling method.

1.3 Local tourism operators namely travel agencies, lodging, restaurants, merchandise transportation within the community. Representatives for each type of business, 2 people each, totaling 10 people chosen Convenient Sampling method.

2. Research instrument

In-depth Interview and Structured Interview

3. Data Collection

Data collection in the area of agricultural tourism was conducted with the interviews with all relevant sectors, including government sectors, tourism operators in the area, community leaders / farmers groups / community enterprises and people to study the spatial context. The issues and questions used in each area were different according to the context and mission of each target group as follows:

3.1 Government sector: The issues used in the interview were the agency's mission, roles, duties, capabilities in the management of agricultural tourism in the area and trends of participation in tourism development in the area

3.2 Community leaders / Farmer groups / Community enterprise groups and people in the area: The issues used in the interview were spatial contexts, roles, functions of participation in spatial tourism activities and demand for agricultural tourism development in the area.

3.3 Private sector, entrepreneurial, tourism business and related groups: The issues used in the interview were the business model of the business operation, the need to use the area in the tourism business and participation in the development of the area to promote and develop tourism.

4. Data analysis of an in-depth interview was done as follows:

The researchers interviewed with a group of informants, collected the results obtained from the group chats of the different groups, and all data validation has been performed. The researchers then categorized the data and analyzed the data as follows:

4.1 Content Analysis was the analysis of data obtained from interviews for content analysis by prioritizing and grouping of the content. Including analysis, classifying and summarizing the issues discovered (Topic) and using inductive descriptions by analyzing the situation of the mechanism driving the tourism network partners in Phra Nakhon Si Ayutthaya province.

4.2 Triangulation data validation was done by examining information from the source of information in terms of time, place and person to determine whether Information that was different in time at different locations, and that information contributors were also given consistent content in which the results of the data collected by the triangular method resulted in the same findings. This showed that the information the researchers has obtained was accurate. The researchers used the data from all 3 interviews to analyze and summarize each topic according to the research objectives.

V. RESEARCH RESULTS

The results of the study from all sectors involved in agricultural tourism in Phra Nakhon Si Ayutthaya province found that promoting agricultural tourism had a positive effect and can enhance the way of life of the locals in the area. In the part of the government sector, the government has embraced policies from the government on the development of tourism in the area by using existing social capital as a means to drive job creation activities and provide a career for the community. As for the community itself, efforts are made to develop their own tourism management. However, due to the basic way of life of most people are farmers, they therefore have no experience and skills in the management of community tourism. Although there is a strong intention to develop the communities, the communities still faced with various problems.

In this context, the capacity building of partners in the Phra Nakhon Si Ayutthaya Tourism Network province in the present has 2 issues as follows:

1. Context of the capacity building of network partners

Currently, there is no single agency that is clearly responsible for agro-tourism in Phra Nakhon Si Ayutthaya province. There is only an assignment to the Agricultural Office of Phra Nakhon Si Ayutthaya Province from the Upper Central Province Group 1 to implement a production system development project and food safety business annual fiscal year 2017 activities of developing learning centers and tourist attractions. After that, however, there was a lack of continuity of project management. Working in agro-tourism is still lacking personnel who have direct knowledge and competence in agricultural tourism management although Phra

Nakhon Si Ayutthaya province has ordered the appointment of the Provincial Agenda Working Group (Agenda), the 5th group to increase the value of agricultural products and the 6th group to increase tourism value. The work of the steering committee is only in line with the mission of its own agency. There is no integration, collaboration, and linkage with relevant departments. It is an operation in a form of different parties working in the nature of cooperation of the network that is not permanent but a temporary network. As a result, each network partner has duplicated work in developing the same target group. The participants of the meeting or the trainers feel that they are participating in activities with the government in a matter that is nothing new that makes them bored and does not want to participate in activities with government agencies. Sometimes the participants feel that the government took part in spatial activities regardless of the actual needs of the trainees. The activities also lack of continuity like the government sector leave the community once the activities were finished. There is no continuation or extension of sustainable development that affect the regular occupation of the people in the community. Furthermore, the training techniques used in performance enhancement were ineffective and deficiency, such as prolonged on-site training, making the trainees tired of just sitting and listening. Therefore, there should be educational activities in other areas and there are more platforms to exchange knowledge. In terms of the budget that each sector has set for spatial development, there is redundancy, wastes on the budget that has been spent on personal and spatial resource unsystematically. There are few networks that work together, for example, between government agencies and communities, or between private and community agencies only. More importantly, personnel in various sectors still lack the knowledge and understanding of sustainable agro-tourism management. These problems arise from a lack of integrated planning in implementing spatial development. Therefore, all sectors must focus on working together with the goal focusing on the development of tourism personnel, community product development, development of tourist attractions and facilities by linking with all parties involved in supporting networks to promote and develop whether it is a government agency, private sector, public sector, community, educational institution involved in the development. There is a process of organizing training to build skills and competencies in tourism management of the area for empowering the community to manage self-reliance tourism, promote adding value and charges from the cost of community resources to products and services, delivering a positive experience for tourists and to build community participation as a model in agricultural tourism management with the development of appropriate models of empowerment of network partners. There should be a management system and linking agricultural tourism to all areas in Phra Nakhon Si Ayutthaya province.

2. Challenges occurring in Phra Nakhon Si Ayutthaya province

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Government sectors, the private sectors, the public sectors and the community have given issues that need to be developed and further their potential to achieve the competency that is competent in driving agricultural tourism in Phra Nakhon Si Ayutthaya province. Such issue can be divided into sectors of the network parties as follows. (Thanaphum Pongsangiam, 2021)

Government sectors

- 1) Lack of personnel with specialized knowledge in community tourism development.
- 2) Lack of coordination between government sectors which cause a redundant spatial position.
- 3) Insufficient allocated budget for development in some areas.
- 4) Lack of public relations agricultural tourism in the area of Phra Nakhon Si Ayutthaya province.
- 5) No main agency to lead the development in the same direction.

Private sectors

- 1) The resources used for agricultural tourism promotion of each area are still insufficiently developed to promote tourism.
- 2) The structure of the area that for accommodate tourism activities is not yet ready.
- 3) Lack of villagers do not yet knowledge and understanding of community tourism management among communities/locals
- 4) Government sector place less emphasis on agricultural tourism than historical tourism.
- 5) Lack of coordination between communities and government sector to support agro-tourism or community tourism activities.
- 6) No main agency to support or take the lead in promoting agricultural tourism of Phra Nakhon Si Ayutthaya province.

Public sector/Communities

- 1) Communities does not have sufficient knowledge on the community based tourism management system and tourist behavior
- 2) Lack of knowledge, understanding and attitude of participation in management including the participation in organized tourism activities by the community on the basis of mutual agreements between members of the community.
- 3) Lack of knowledge in the process of strengthening tourism promotion with community participation.
- 4) Lack of knowledge and ability to develop new tourism activities that reflect the wisdom and identity of the community to tourists.
- 5) Lack of knowledge and understanding of principles strategies for coordinating benefits for all parties in the community
- 6) Unclear distribution of roles and functions.
- 7) Suspicious working system which lack of auditing system
- 8) Lack of participation from planning to develop tourism systems in the community.
- 9) Lack of skills in writing community tourism development plans.
- 10) Lack of knowledge of the accommodating capacity of the area

- 11) Some tourism activities affect their livelihoods and the peace of the community
 - 12) No strong measures to control and prevent social, cultural and environmental impacts as a result of the development of tourism in the communities.
 - 13) Community tourism resources are not properly maintained.
 - 14) Some of the household members of the communities lack awareness of the conservation of tourism resources of the community.
 - 15) Lack of dialogue among community members about the impact and transformation of community tourism resources to find a solution together.
 - 16) Lack of the advice of tourists to cooperate in the preservation of the environment of the attractions in some communities.
 - 17) Lack of knowledge and ability to build a community-based tourism network
 - 18) Lack of knowledge and ability to guide
 - 19) The tourist attractions in the community causing problems in providing information about the community and tourist attractions in the communities.
 - 20) The community has little potential to produce local products causing some communities to take their products from elsewhere which is not a product that reflects the identity of the communities to be sold to tourists.
 - 21) Lack of the ability to interact with tourists.
 - 22) Lack of knowledge and ability to properly manage basic facilities for tourists both quantitatively and qualitatively.
- From the study results, it was found that the network partners still face problems in the implementation of the network, such as lack of knowledge, understanding and competency in the management of agro-tourism, lack of key agencies to coordinate spatial development, including the public sector, the private sector and the public sector that has not yet been integrated in working together to drive the agricultural tourism of the community Therefore, the operation in the form of an associate of the agricultural tourism network in Phra Nakhon Si Ayutthaya province should established real network with procedures for establishing network partners as follows
1. Organize a forum to raise awareness to the groups related to agro-tourism by inviting various agencies involved, including the government, private sector, public sector and academic groups to attended and listen to the needs of driving agricultural tourism in the area.
 2. Determine the objectives of the establishment of the network, direction of the main activities.
 3. Establish a main group of the Agricultural Tourism Networks.
 4. Define vision, mission, activities and joint projects.

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5. Provide an exchange of knowledge and information necessary for the spatial development.
6. Provide training courses in network management are organized regularly.
7. Follow up and evaluate results on a regular basis.

The results of the study of competencies needed to develop agricultural tourism and the needs of network partners for their own development made it possible to define a method for enhancing knowledge, abilities and competencies of the Agro-Tourism Networks in Phra Nakhon Si Ayutthaya province. There are nine techniques for strengthening the capacity of network partners, which are

- 1) Lecture; 2) Discussion; 3) Field Trip; 4) Demonstration; 5) Brainstorming; 6) Case Study; 7) On-the-Job Training, OJT; 8) Coaching; and 9) Mentoring.

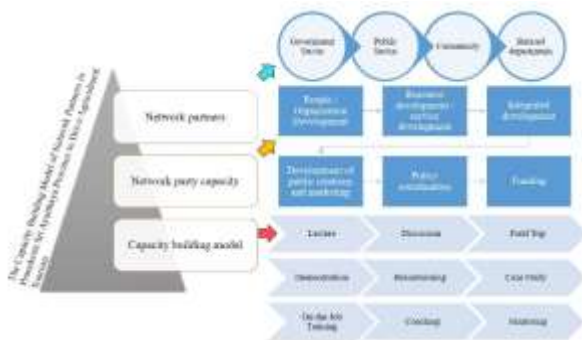


Figure 1. The capacity building model of network partners to drive agricultural tourism

VI. DISCUSSIONS

To create jobs and careers for more income, reduce exposure from government agencies by reliance on related agencies such as the government sector that is the agency that helps support the budget, trainers in educating the equipment and machines used in the training including private sectors help support access to services or buy products for further distribution. Sometime, there will be academic agencies such as educational institutions that come into the area to help support the community to develop creative ideas in product processing, raising the standard in products and services. However, the work of each sector is still lacking in integration in working together. Therefore, in order to achieve the maximum benefit of spatial development, all sectors must work together in the form of tourism network partners. Adam Burke (1999) said that the approach to networking can be determined by inviting organizations and stakeholders to participate in determining the objectives of the network establishment, direction of the main activities, establishing the network core group and provide opportunities for members to participate in the decision-making process.

Cooperative management and information exchange technology encourage a link between the network and the network to strengthen the network. There should be a follow-up and evaluation including network management training courses for organizations network leaders regularly. The training courses must correlate with the development goals in line with the area development mechanisms consisting of people, management systems and tourism resources. This result was consistent with the Bureau of Tourism Development (2010) the management potential of agricultural tourism attraction can operate, plan, supervise and manage tourist sites to be sustainable. The capacity to accommodate agricultural tourism sites can provide basic services for tourists that are suitable for the environment of the tourist attraction. Service potential of agricultural tourism sites has the ability to create value for the products that are served within the tourist attractions. The attractiveness of agricultural tourism destinations has the ability to impress tourists. Similarly, Pongsarun Pollsriert (2012) stated that collaboration process requires knowledge, skill, trait, social role, self-image, motive, experience and individual' abilities are attributes that comprise a person's knowledge, skills, quality and potential (Nagarajan and Prabhu, 2015). It is also an ability that gives a person the flexibility to modify himself and also able to create new knowledge and develop their abilities continuously. That means high capability organization is required to have high competency people in the agricultural tourism network and the network must have the ability to coordinate and integrate the capabilities of the personnel of all networks to be one that leads to the success of the mission to cooperate in the implementation of strategies to achieve the vision of the Agro-tourism Network of Phra Nakhon Si Ayutthaya Province. Tourism network partners must develop their knowledge and the ability of individuals to develop higher competencies in the management of agro-tourism with a method that consistent with Wittaya Chansiri (2008) who stated the development for agro-tourism requires competency enhancement methods in various fields namely 1) Workshops; 2) Training; 3) Lectures; 4) Complementary activities; 5) Management games; 6) Recreational activities; 7) Role playing; 8) Brainstorming; 9) Field trip study to create knowledge and understanding that are easy for spatial development, especially in the area of agricultural tourism management.

VII. CONCLUSION

A model for capacity building of the Agro-Tourism Networks in Phra Nakhon Si Ayutthaya Province is to study the needs of communities to develop agricultural tourism in their own area on the basis of social capital, resources, and existing tourist attractions. However, the group's network partners still lack the management knowledge that has the potential and conform to the standards for the agricultural tourism service, which enhances the capacity

building for the agro-tourism network partners in Phra Nakhon Si Ayutthaya province consisted of:

1) People / Organization Development

Developing analytical thinking, linking tourism with sustainable community development and resource management, organizing visiting activities between members of the network to open up their horizons and encourage each other, organize a forum to exchange knowledge and summarize lessons, develop knowledge and skills necessary for self / organization development in order to create a clear community of members on ideas

2 Resource development / service development

Developing a safety system in the nature study route, planning about the capacity to support the development of local guides to have knowledge and capabilities and have a certificate of work certification; developing services to create an exchange of learning; building consciousness in conservation of natural resources, developing of first aid and community hygiene, waste and garbage; management in tourist sites, establishing community-based tourism standards.

3) Integrated development

A setting of stage to exchange discussions between different groups to find common ground in the work and to create an acknowledgment that CBT is a part of the community activity where villagers and various groups can participate directly or indirectly. There should be simple activities to create cooperation, such as providing opportunities for various groups to participate, such as being a speaker to lead a group of sales activities of souvenirs or community products. There should also be a lesson summarized and developed into more difficult joint activities such as organizing structural relationships between different groups / organizations in the community, distribution of leadership roles, planning activities together, allocating benefits and building unity to drive solving common problems of the community, creating joint activities to build the power of the network and provide benefits to the member community groups, such as having a network committee to negotiate on forest areas, arable areas and tourist sites, doing public relations and marketing together, or negotiating with a travel agency, coordination of resources from the state, etc.

4) Development of public relations and marketing

Organizing a forum for discussions with tour operators to create cooperation in working with the network; marketing training and marketing opportunities for community-based tourism; preparing media for community-based tourism, developing a participatory marketing plan, studying and visiting management for decision-makers to understand community-based tourism concepts and patterns by organizing exhibitions / festivals, community-based tourism, etc.

5) Policy coordination

Building a policy for states to recognize and approve the role of communities in tourism management, coordinate government budgets and personnel to support and promote network members, create inter-network commitments on issues that are seen in each community government regulations to be more beneficial to the community or protect more natural resources, the development of human resources jointly issue rules - regulations that benefit the community in the management of tourism and reduce various impacts on the environment, society and culture, etc.

6) Funding

Funding for community-based tourism funds, requesting funds for investment in the production of advertising, public relations and marketing, preparation of fundraising projects for campaigning and raising funds into the network, such as making shirts, music, postcards, books or paintings to earn income; cutting revenue from selling tourism programs to members of the community and annual membership network fee collection.

Therefore, the models used for developing, strengthening management competencies that have the potential and in line with the standards for the agricultural tourism service that are suitable for the Phra Nakhon Si Ayutthaya area network partners will be the following model;

- 1) Lecture model is a new knowledge and understanding building to create incentives for agricultural tourism activities of the area on the social cost areas that the community has
- 2) Discussion model is a form of empowerment in the form of acknowledging problems or issues of problems and understand them from a variety of perspectives to get an idea of the advantage and disadvantage in implementing them.
- 3) Field Trip model is the observation learning from the real place which cannot be displayed in the classroom. It stimulates the students' interest by seeing the cause or condition of the actual problem.
- 4) Demonstration model is the training of skills in how to use tools, equipment or work pieces that require tools to be correct or learning to use new techniques in performance.
- 5) Brainstorming model is a way of learning that network members will propose the new or diverse ideas before being analyzed for practical feasibility. It encourages thinking outside the box, solving traditional problems in order to find concrete solutions and develop creative thinking
- 6) Case Study model is to build skills in problem-solving process and problem-solving, requiring examples of real problems. Learn how to fix problems that have been carried out. Network members can propose issues to be resolved by groups or individually.
- 7) On-the-Job Training (OJT) model is skill training for network members to work with others immediately.

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8) Coaching model is the development of network members to have knowledge and abilities for their roles in accordance with the main and secondary missions of the Agricultural Tourism Network of Phra Nakhon Si Ayutthaya Province and develop the old knowledge of the network to the desired level In order to utilize the full potential of the network partners.

9) Mentoring model is a capacity building that creates a feeling of confidence in network partners to be able to quickly adapt to the culture and become part of the agro-tourism network. It is also a learning of method and working skills required by the agency through mentors, which provide intimacy and familiarity. Mentoring provides a better learning environment, building relationships and facilitating mutual learning

The model for building the capacity of the agricultural tourism network partners must correlate with the development goals in line with the area development mechanism system consisting of people, management systems and tourism resources in Phra Nakhon Si Ayutthaya province.

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Differences of Buyer–Supplier relationship from different types of automotive parts

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Abstract— The purpose of this research were 1) To study buyer and supplier relationship with automotive parts industrial in Thailand. 2) To analyzed the differences of buyer and supplier relationship in different types of automotive parts industrial in Thailand. We used data from 1st tier of automotive parts manufacturer 192 firms from 6 categories (Engine parts, Electrical parts, Transmission parts, Suspension & Brake parts, Body parts and Interior parts) in Thailand. This research uses questionnaire for research tool to get data from sample. The statistic in this research used KMO and Bartlett's test for buyer and supplier relationship factor analysis and used One way ANOVA by LSD (Least Square Difference) method for analyzed the differences of buyer and supplier relationship. The results show Trust, Atmosphere, Cooperation, Commitment, Adaption and Communication are positive impaction to buyer-supplier relationship at significant level of .05 and 4 components of Buyer and Supplier relationship (trust, atmosphere, commitment and communication) have mean difference at significant level of .05. This paper is fresh to show the differences of buyer and supplier relationship factors in different types of automotive parts. This contribution supports who are supply chain managers in automotive parts they can manage the relationships with their suppliers and customers in different categories of automotive parts. The relationships of buyer-supplier have many factors and all factors are important for contribute the relationship in automotive part industrial which contained Trust, Atmosphere, Cooperation, Commitment, Adaption and Communication.

Keywords— Buyer and Supplier, Automotive parts, Differences relationship

I. INTRODUCTION

In today of business competition, the intangible assets are very important not less than tangible assets. Even consumer marketing that very interested about intangible assets such as brand loyalty, customer relationship, employee engagement. Industry marketing were also considering for intangible assets are one key success factor and support firm's strategies [1]. Academicians argued the relationship between firms are important included supply portion and demand portion [2]. Both of customer relationship and supplier relationship were components of supply chain activities that included 7 activities were Customer relationship management, Customer service management, Demand management, Order fulfillment management, Manufacturing flow management, procurement/Purchasing and Product development and customization [3]. One mainly of supply chain management is relationship management that means relationship of internal firm and also external relationship. The original theory for supply chain management began in automotive industry due to automotive industry included many businesses in chain and needs to get the accuracy information, clearly of physical flow

and payment flow. 2 decades of research that recommends first relationship should be done with external of firm and it will be affect to internal relationship [4]. In term of supplier perspective in automotive parts the relationship with their partner is very important because they need more the interdependent with technical supporting, costly and delivery in timely. Also some time, they need production in flexible with volume and type of products. That will be benefits from buyer-supplier relationship.

Buyer-Supplier relationship has many factors inside. Almost of them are subjective which academicians suggested the factors contained Trust, Atmosphere, Cooperation, Commitment, Adaption and Communication [5], [6], [7] These factors helpful business performance and keep good relationship between firms in industry marketing that also included automotive business. Nevertheless buyer-supplier relationship evidential of automotive business in Thailand is rareness that this study aimed to analyzed buyer-supplier relationship factors in Thailand automotive business and measure the difference level for mean of buyer-supplier relationship in different of automotive parts that contained 6 categories (Engine parts, Electrical parts, Transmission parts, Suspension & Brake parts, Body parts and Interior parts) Automotive industrial is one important business for economic

index in Thailand. Due to Thailand Automotive industrial is top 10 output of production in the world [8].

II. RESEARCH OBJECTIVES

The purpose of this research were 1) To study buyer and supplier relationship with automotive parts industrial in Thailand. 2) To analyzed the differences of buyer and supplier relationship from separated types of automotive parts industrial in Thailand.

III. LITERATURE REVIEW

Supply chain management was introduced in early 1980s. It is network to managed for physical flow from inbound activity to outbound activity (Raw material to product), information flow from customer to supplier e.g. demand from customer which linked to firm and also linked to supplier and Payment flow from customer to firm and supplier [9]. For buyer –supplier relationship is one task of purchasing function and purchasing is a part of supply chain activities which totally 7 activities that are Customer relationship management, Customer service management, Demand management, Order fulfillment management, Manufacturing flow management, Procurement/Purchasing and Product development & customization. Regarding first industry that used supply chain management in efficient is automotive industry. Because this industry concerns with many firms of automotive parts manufacturing and also included car maker. Therefore supply chain management is great management tool for this industry [10]. One car has many parts and majority or specific part must be produced by specific firm of that parts. Example Tire and wheel have many researched and designed to made prototype product for testing with car maker due to car's weight and engine capacity that all concerned to tire and wheel, so who are tire and wheel manufacturer must be got informations and requirements from car maker. Hence the relationship between buyer and supplier is more interested especially for automotive part maker and car maker [11].

Academic and practical are mentioned the relationship is subjective and tried to explain the dimension of business relationship [2], [5], [6]. In order to understand the dimensions of business relationship especially for industrial marketing. A review the relevant literature provides the dimensions of business relationship which base on IMP (International/Industrial Marketing and Purchasing Group) that the IMP was formed in mid of 1970 they have objectives of examination the issues of relationship between buyers and sellers in business markets. More projects of IMP was worked by researcher team in France, Germany, Italy, Sweden, and the UK. IMP model has components of business relationship which contained Trust, Atmosphere, Cooperation,

Commitment and Adaption [12]. On the other hand the communication is important for starting the relationship that have scholars argued the communication is high impact to long term relationship between business to business [13], [14]. This study used IMP model and involved the communication factor in buyer-supplier relationship factor. Based on this conceptualization of business relationship as having IMP based and involved behavioral factor such as communication dimensions, the following hypothesis is proposed: Trust, Atmosphere, Cooperation, Commitment, Adaption and Communication are positive impact to buyer-supplier relationship. Meaning of each factor of buyer-supplier relationship (Trust, Atmosphere, Cooperation, Commitment, Adaption and Communication) and Thailand automotive part industry made explanations next topic.

3.1 Trust

Trust is necessary in commercial even big or small business must be trust with partners in their business [14]. The basis of relationship become from trust. For key success of business the one important to drive the good relationship is trust due to when the business needs customer loyalty it must be kept customer's trust in first. Trust in business relationship is one experience between customer and supplier work together. Base on the nature of trust. It is importance to contribute customer loyalty that will leave any majors impact the development of businesses and execute their business to business relationships [15]. About trust as a major construct to develop the successful of relationships in business to business markets and go to customer loyalty achievement. Trust has been defined from firm's belief that are outside company that will be performed some actions that will give the positive result to firm. On the other hand they will take unexpected actions that give the negative result for the firm [16]. Hence trust is one major factor of business to business relationship.

3.2 Atmosphere

Atmosphere in business relationship occurred from environment between customer and supplier working. It can be negative or positive atmosphere. Namely positive atmosphere is both parties (Customer and supplier) willing to adapt or adjust their resources for supporting business relationship. On the other hand, negative atmosphere means conflict of working. However atmosphere is one factor for supporting relationship in business [17]. The atmosphere is norms of business competitive and corporation environment moving involved. These norms include other relationship factors such as trust. The atmosphere is forming by the patterns of interactions in business environment context and outcome. The original of IMP work explained the

atmosphere in terms of the power-dependence relationship between buyers and sellers, overall closeness or distance of business relationship and the mutual expectations between the parties in business [12].

3.3 Cooperation

No one in business of today would be face with uncertainly situation such as demand fluctuation, weak of supply. [17] argued firm have to do cooperation in supply chain and keep it for supporting business performance. Cooperation is not one firm doing but it is intersection between firm and share benefit together. Cooperation in a business to business relationship is manifestation of the elements of business trust and commitment in term of behavioral which are seen as key elements to help relationship quality increasing. The levels of cooperation would indicate a high quality of business relationship. Cooperation is one important to help quality of work in supply chain like exchanging information on production schedules between car maker and automotive part manufacturer, new products concept and design [18]. Usually car maker and automotive part manufacturer aim to do value analysis that can help both reduce product costs and improve product/process innovations for car maker and automotive part manufacturer.

3.4 Commitment

Commitment means firm have willingness to deal a trading with partners and to attend to make effort on the relationship and focus a future orientation to build a relationship in business as that can be sustained in the case facing of unanticipated problems [12]. In sustainable of relationship, Firm has to do the commitment and aim to achieve what firm saying to do with parties in business. Empirically the key success of relationship is commitment. It can be improved business relationship due to parties in business can measure the actual action with their parties given the ambition before. Academicians argued that is relevant factor to contribute business relationship [14]. Thus commitment is a temporal dimension to associate with the duration or age of the business relationship. All parties of business are willing to invest in asset for business transaction or specific assets. This action demonstrates firm and parties in business can be relied upon to perform essential in the future.

3.5 Adaption

Difference firm have different system and resources in normally. In business relationship no only one firm can standing alone that means every firms has to adaptive themselves align the target of business relationship. Meaning of adaption is mechanism to drive business relationship [14]. Long term relationship needs some improvements or

investments from some parties in supply chain. Buyer-seller adaptations be behavior or structure of modification in corporate level, group level, individual level, carried out the one organization which are initiate product designed or product concept to meet specific requirement of one other organization [12], [17]. Generally in automotive industry needs parties in supply chain exchange the ideas, experience to improve the capability of work and system in essentially such as quality system (IATF 16949) that specific for automotive industry who are car maker and 1st tier of automotive part manufacturer must passed audit and earned the certification of quality system management [19]. Besides other of business relationship factors, adaptation is also as an important component of business-to-business relationship [20].

3.6 Communication

In generally, Business is who offer goods or service to someone and whom want to get that offering will have the money transaction in finally. But how seller explain the goods or service to buyer. Communicate is tool for explaining what buyer and seller want. Namely communication is tool for senders bring the information to receiver. In today business is change very fast firm can't deny information is very important and need accuracy of it. Parties in supply chain have to consider the efficiency communication can helpful the good cooperate of partnership and keep good relationship [21], when communication difficulties between parties in business that are identified as a major cause of problems among business relationship. Therefore to make essential for successful in business relation effective communication is need. The quality of communication, information sharing and participation are all significant predictors of successful relationships in business [20]. The quality of the communication includes accuracy, timeliness, adequacy and credibility. Participation of business parties must be jointly in planning process and goal setting. Typically, automotive industry often launch new product in every year and need parties in supply chain keep confidential of information until car maker open new product in official. Communication is one factor to emphasize to maintain the business relationship [12].

3.7 Thailand automotive parts industrial.

Thailand is 8th ranking in the world for car production high output. Due to Thailand is more comfortable of infrastructure and have good support from government. Thailand's Industrial department blueprint shows long term plan in Thailand that enhance automotive industry. For structure of this industry combined core industrials such as automotive parts and supporting industrial such as upstream industrial

(Plastic, Metal). Car assembly firms need more supporting from supplier (Automotive parts) that mean supplier (Automotive part maker) have more skill and core competency of their parts. Thailand automotive parts association separated automotive parts to 6 categories that are Engine parts, Electrical parts, Transmission parts, Suspension & Brake parts, Body parts and Interior parts.

Researcher focus the relationship in 1st tier of automotive part maker due to they have to assign some material or supporting from their supply chain. In example seat in car need structure from metal which produced from stamping maker. 1st tiers have to make their relationship with their supplier [8]. In different products it is also differentiate in administrate and operation system. Same way some category of automotive part is very unique of product and have special of raw material or complication in production. Thus when car maker contact to automotive part manufacturer is differential characteristic of business relationship which depend on different type of automotive part. The level of business relationship factors have difference also. This study have hypothesis as Buyer-supplier relationship influences to type of automotive parts by deference level.

3.8 Variable and hypothesis

This study focuses to analyze buyer-supplier relationship with deference type of automotive parts which factors in this study as following.

2.8.1 Variable This study has 2 variables which contained Independent variable and Dependent variable.

2.8.1.1 Independent variable: Type of automotive parts that are separate to 6 categories that contain Engine parts, Electrical parts, Transmission parts, Suspension & Brake parts, Body parts and Interior parts.

2.8.1.2 Dependent variable: Factors of buyer- supplier relationship which contain Trust, Atmosphere, Cooperation, Commitment, Adaption and Communication.

2.8.2 Hypothesis

H1 Trust, Atmosphere, Cooperation, Commitment, Adaption and Communication are positive impact to buyer-supplier relationship

H2 Buyer-supplier relationship influences to type of automotive parts by deference level.

IV. RESEARCH METHODS

This study is quantitative research follows stage of research by finding the problem by literature review and set up the research questions as what are factors of buyer-supplier in Thailand automotive part industry have and how about the difference of buyer-supplier relationship in different type of automotive parts industry.

4.1 Sample

330 firms of Thailand's automotive part company (Thailand Automotive Institute; 2018) The questionnaires sent to all 330 responders by post mail and 192 questionnaires were answered and received. The effective response rate was approximately 58.18%. The response rate for a mail survey, without an appropriate follow-up procedure, if greater than 20%, is considered acceptable [22]. This study can be used data from automotive parts manufacturer from completed 192 questionnaires from 6 categories (Engine parts, Electrical parts, Transmission parts, Suspension & Brake parts, Body parts and Interior parts)

4.2 Instrument

The structure questionnaire were asked to rate the point 1-5 in Likert scale (5 = very important, 1= not important) adopted from former scholars [20], [23]. The questionnaire has Cronbach's Alpha (α) test and result of Cronbach's Alpha (α) more than 0.7 that can be accepted to use questionnaire for data analysis in this study.

4.3 Analysis

We used Factor analysis and One way ANOVA in SPSS for data analysis. For factor analysis of buyer-supplier relationship use KMO and Bartlett's test for confirming Trust, Atmosphere, Cooperation, Commitment, Adaption and Communication are one factor for buyer-supplier relationship. Code of each category of automotive parts are below.

Code 1 means Engine parts

Code 2 means Electrical parts

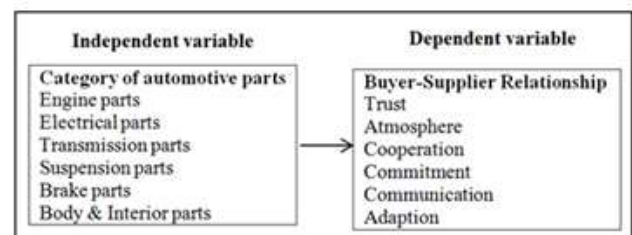
Code 3 means Transmission parts

Code 4 means Suspension parts

Code 5 means Brake parts

Code 6 means Body & Interior parts

Research Framework



Picture 1 Research framework

V. RESEARCH RESULTS

For sample data show response detail and separate by type of automotive parts in table 1

Table 1 Frequency of responding

Code	Type of automotive part	Frequency	Percentage
1	Engine parts	25	13%
2	Electrical parts	46	24%
3	Transmission parts	9	5%
4	Suspension parts	18	9%
5	Brake parts	54	28%
6	Body & Interior parts	40	21%
Total		192	100%

VI. DISCUSSIONS

The most of frequency responding is Brake parts 54 samples (28%), second Electrical parts 46 samples (24%), third Body & Interior parts 40 samples (21%), fourth Engine parts 25 samples (13%), fifth Suspension parts 18 samples (9%) and last for Transmission parts 9 samples (5%)

Factor analysis result shows factors of buyer and supplier relationship contained Trust, Atmosphere, Cooperation, Commitment, Adaption and Communication. All factors are related in one factor of buyer and supplier relationship the data show in table 2 and 3

Table 2 Result of KMO and Bartlett's test

Statistic	Result
Kaiser-Meyer-Olkin Measure of sampling Adequacy	0.776
Bartlett's Test of Sphericity Approx. Chi-Square	509.429
Df	15
Sig.	0

Table 2. Result of KMO > 0.7 and significant level below 0.05 that means all factor correlated in one factor with significant level [24]. For factor loading and Eigenvalues result refer to table 3 as below.

Table 3 Factor loading and Eigenvalues result

Factor	Loading
Trust	0.862
Atmosphere	0.853
Cooperation	0.748
Commitment	0.708
Adaptive	0.668
Communication	0.659
Eigenvalues of total	3.412

Table 3. Factor loading of all factors more than 0.6 that are accepted to combine to one factor, Eigenvalue over 1 that means all factors were independent [24], [20], [25].

Thus Hypothesis 1 is accepted for Trust, Atmosphere, Cooperation, Commitment, Adaption and Communication are positive impacting to buyer-supplier relationship.

The hypothesis 2 was test by One way ANOVA by LSD (Least Square Difference) to clarify the difference of mean level of buyer-supplier relationship with different type of automotive parts. The result from One way ANOVA by LSD (Least Square Difference) method that refer in table 4

Table 4 ANOVA and LSD result

Buyer-Supplier Relationship	F	Sig.	LSD
Trust	6.72	.000**	2,5>4 1,2,5>6
Atmosphere	2.72	.021*	1,2,4,5>6
Cooperation	2.05	0.07	
Commitment	5.73	.000**	2>1,5,6 4,5>6
Adaptive	0.85	0.52	
Communication	4.8	.000**	2>1,3,4,6 5>1,4 6>1

*significant level <0.05

**significant level <0.01

Explanation of table 4 about category of automotive parts. Code 1 means Engine parts, Code 2 means Electrical parts, Code 3 means Transmission parts, Code 4 means Suspension parts, Code 5 means Brake parts, Code 6 means Body & Interior parts. Result shows 4 components of Buyer and Supplier relationship has means difference. Means of Buyer and Supplier relationship for Electric and Body parts is higher than Brake parts while mean of Engine, Electric and Body parts is higher than Interior parts in Trust factor. Mean of Buyer and Supplier relationship for Engine, Electric, Brake and Body parts is higher than Interior parts in Atmosphere factor. Mean of Buyer and Supplier relationship for Electric part is higher than Engine, Body and Interior parts while Mean of Brake and Body parts is higher than Interior parts in Commitment factor. Mean of Buyer and Supplier relationship for Electric parts is higher than Engine, Transmission, Brake and Interior parts while mean of Body parts is higher than Engine and Brake parts, Mean of Interior is higher than Engine parts in Communication factor. In the other hand mean differences of Buyer and Supplier relationship for Cooperation and Adaption factor is not. According the result this study accepted hypothesis 2 about Buyer-supplier

relationship influences to type of automotive parts by deference level.

VII. CONCLUSION

The relationship in business as buyer-supplier relationship has many factors and all factors are important for contribute relationship which contain Trust, Atmosphere, Cooperation, Commitment, Adaption and Communication that according with [26], [24]. [20] argued the relationship element is strong contribute for buyer-supplier relationship but each factor result will be difference depend on geographic and context are change. In this study show trust factor and atmosphere are strong positive impacted to business relationship due to trust is basis for improvement the long term relationship also atmosphere factor depended on environment effect that Thailand is good infrastructure and good support from government. Automotive industry in Thailand can be use these factors of buyer-supplier to develop business relationship and will get a good impact to firm performance. Finally this study reply research question the factors of buyer-supplier relationship in Thailand automotive part are trust, atmosphere, cooperation, commitment, adaption and communication.

The difference level of buyer-supplier relationship factors with different type of automotive parts that show some components of buyer-supplier relationship as trust, atmosphere, commitment and communication factor is difference due to some category of automotive parts have to make a complex of production and have investment some technology to make the good product that necessary to take more strong relationship in some component of buyer-supplier relationship such as trust, atmosphere, commitment, adaption and communication. But cooperation is not because in business the cooperation is basis for maintain the relationship. On the other hand automotive part some category have head quarter in same country with car Assembly Company. Thus they can make good relationship. Some categories have difference country of head quarter the same level of all components in relationship maybe not.

Implementation

This study contributed the knowledge of buyer-supplier relationship to academicals and professional as following.

Academicals

This paper is fresh for showing differences buyer and supplier relationship factor in different types of automotive parts in Thailand. The result confirmed component of buyer-supplier relationship contained Trust, Atmosphere, Cooperation, Commitment, Adaption and Communication that are one factor for buyer-supplier relationship. Another topic the result shows difference level of buyer-supplier relationship with

difference type of automotive part. That experiment for academic about the buyer-supplier relationship components influence to type of automotive part in differently. That made reason the relationship is necessary to improve by continuously.

Professional

This contribution supports supply chain managers in automotive parts to manage relationship with suppliers in term they are buyer and also it can be help manager in term of they are supplier. They can consider their product as they produced and rareness of resources as they have. Because the components in buyer-supplier relationship factor impact to automotive part by different level depend on type of part. Example electronic part has level of buyer-supplier relationship in trust, atmosphere, commitment and communication more than body and interior part. Due to electronic part is high technology product and have complex of supply and production. Thus the parties in supply chain of electronics part have to make more business relationship.

Further study

Researcher recommend to confirm all of component in buyer-supplier relationship factor can fix for other industry or not. This gap can help to confirm in next study.

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Marketing Mechanism for Food Safety in Phra Nakhon Si Ayutthaya Province

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Abstract—The purposes of the research article were 1) to develop a marketing mechanism for promoting food safety and agricultural safety standards to be accepted, 2) to strengthen a strong food safety and GAP network, and 3) to use integrated marketing communications to make awareness of the difference between safe food and GAP with chemical-agriculture products. Qualitative research using action research was used for research design and data were analyzed using content analysis and analytic induction. The findings showed that 1) the researchers developed a model and establish a prototype for the agricultural safety and food safety market that can promote food safety standards and GAP Products to be more acceptable 2) we can strengthen a strong food safety and agricultural safety network by train 397 people with food sanitation certification, and 3) the customers were more aware of the difference between safe food and GAP with chemical-agriculture products

Keywords— Marketing mechanism, Safety food, GAP, Integrated marketing communications

I. INTRODUCTION

Food is extremely important to health as it is one of the factors that sustain life, but if the food is contaminated with harmful substances or even contain substances that are allowed to be used in food but having a quantity that is more than the proper amount will cause harm to consumers and affect the quality of life. Promoting people to have good health and not getting sick is something that the government or related agencies must support, control, supervise, monitor, and protect the people. These actions must ensure that all people can access to consume safe and nutritious food thoroughly. Currently, the major problem encountered in fresh food that is, there are a lot of contaminants that cause health hazards when we eat them and it can have both short-term and long-term effects, or it can be life-threatening. Most of the stores are interested in their benefits more than consumers' lives and this is why many contaminants are accumulated in customers' bodies.

Nevertheless, there are many consumers who care about their health by seeking safe food but still not confident in the quality of food that it is really safe or not, as well as many producers themselves are struggling to find a market that sells agricultural and safe food products because those safe

products are sold together with chemical-agriculture products, thus they are unable to add value to their products. Therefore, this research will create a marketing mechanism for food safety for consumers, initiate from Phra Nakhon Si Ayutthaya Province, and give confidence in the products that they purchase are truly safe, and manufacturers have a market where they can distribute their products in a valuable way.

II. RESEARCH OBJECTIVES

- 1) to develop a marketing mechanism for promoting food safety and agricultural safety standards to be accepted
- 2) to strengthen a strong food safety and GAP network
- 3) to use integrated marketing communications to make awareness of the difference between safe food and GAP with chemical-agriculture products.

III. LITERATURE REVIEW

Marketing Mechanism

In economics, the market mechanism is a mechanism by which the use of money exchanged by buyers and sellers with an open and understood system of value and time trade-offs in a market tends to optimize distribution of goods and services in at least some ways. The mechanism can exist in free markets or in captive or controlling markets seek to use

supply and demand, or some other form of charging for scarcity, to choose among production possibilities. In a free market economy, all the resources are allocated by the private sector (individuals, households, and groups of individuals); in a planned economy, all the resources are owned by the public sector (local and central government); and, in a mixed economy, some resources are owned by both sectors, private and public. In reality the first two are mostly theoretical and the third is common. Resources are allocated according to the forces of supply and demand.

Government interference in the market mechanism can lead to economic inefficiency when it is applied to some private goods. Prices convey a lot of information. They not only tell producers what to produce but also inform the producers to produce what people want. The more inaccurate the information gets, the lesser will be the economic coordination which will in turn lower satisfaction of wants. Thus interference in the information conveyed by prices is destructive to economic development if misapplied or overused. However, the market mechanism often cannot optimize for public goods, owing to problems such as the tragedy of the commons. For example, modern highways have been good for economic development, but it has taken government planning and allocation to bring them into existence.

Other market mechanisms include government fiscal policy and monetary policy. Described by the Friedman rule proposed by Milton Friedman.[1] These policies will influence demand by price adjustments through taxes and charges and through adjustments to the value of money by the related supply of money.

Good Agricultural Practice (GAP)

Good Agricultural Practice is a certification system for agriculture, specifying procedures (and attendant documentation) that must be implemented to create food for consumers or further processing that is safe and wholesome, using sustainable methods. While there are numerous competing definitions of what methods constitute good agricultural practice there are several broadly accepted schemes that producers can adhere to.

In Thailand, there is a standard called “Thai Agricultural Standard: TAS 9001-2013” [2] that contains the good agricultural practices for food crop. This is the way how to ensure food safety in the up-stream supply chain, but the major problems about GAP in Thailand are too few public inspection body and too expensive cost for private inspection body.

Food Safety

Food safety refer to all measures to ensure that food will not cause harm to the consumer when it is prepared and/or eaten according to its intended use.[3]

There are three types of food contamination that make food unsafe: biological, chemical and physical. Food contamination can easily occur in a commercial kitchen.

In Thailand, For the purpose of ensuring food safety and quality, Bureau of Food has responsibilities for protecting consumer's health from hazardous and deteriorated foods.

Its functions include pre-marketing approval and post-marketing activities, e.g., licensing for manufacturing and importation of food commodities and registration of specially controlled food. The purpose is to screen for good quality and safe food only to enter into markets. These have been undertaken and regulated by Thai FDA under the provision of the Food Act B.E. 2522.[4]

Nevertheless, under the provision of Ministerial Regulation of Ministry of Public Health in Sanitation of food selling places, B.E. 2561, it also sets that food business owners and food handlers must train and qualify for food sanitation certification. This is the way how to ensure food safety in the mid-stream supply chain.

IV. RESEARCH METHODS

A. Research Design

Action research [5] were used and research tools were unstructured interview and participant observation. Data were collected from in-depth interviews, focus group discussions, and observations. Qualitative data from 10 key informants were analyzed by using content analysis and quantitative data about training from 247 trainees of food sanitation program were analyzed by using descriptive statistics and paired sample t-test.

B. Research Process

Research process of this research has developed into 7 steps consisted of to analyze concept, created research tools, conduct the experiment, and to assess experimental results. Steps were shown as follows:

- 1) examining the current situation of GAP producers
- 2) studying and establishing food safety standards and participatory certification system (Participatory Guarantee System (PGS) to manage upstream sources (Upstream) of safe food
- 3) building the safe agricultural network using a participatory certification system. (Participatory Guarantee System-PGS) as the main tool.

- 4) selecting two prototype sites for developing into a safe food market and a safe GAP market.
- 5) continuously improving and developing the prototype site to meet the standards.
- 6) developing personnel and testing units to verify the safe food products are in accordance with the standards
- 7) using Integrated Marketing Communication (IMC) to raise awareness and create values for safe food consumption
- 8) summarizing and reporting the findings.

V. RESEARCH RESULTS

Results indicated that 1) the researchers developed a model as shown in Fig.1 and establish a prototype for the agricultural safety and food safety market that can promote food safety standards and GAP Products to be more acceptable 2) we can strengthen a strong food safety and agricultural safety network by train 397 people with food sanitation certification, and 3) the customers were more aware of the difference between safe food and GAP with chemical-agriculture products.

From Fig.1, the GAP market can be established if there are one or more group of GAP producers in the province (or in the area). We also consider in suitable crop types and adequate quantities. The outer GAP producers are optional. And we need the market keeper to operate the market, especially Non-profit organization, such as Pracharath Rak Samakkee Social Enterprise Co. Ltd., which was established in almost every province. The Primary target customers are the health concern, so most of them use “appearance”, “price”, and “ingredients” to judge food quality[5] and they are in the middle-income class (have more purchasing power than the usual group) then the place to set up the market will be convenience, different from the local market or community market. Next, we selected 3 places as the choices to set up the market those are 1) Farmer Market, 2) Na Krung Kao, and 3) Wat Ket.

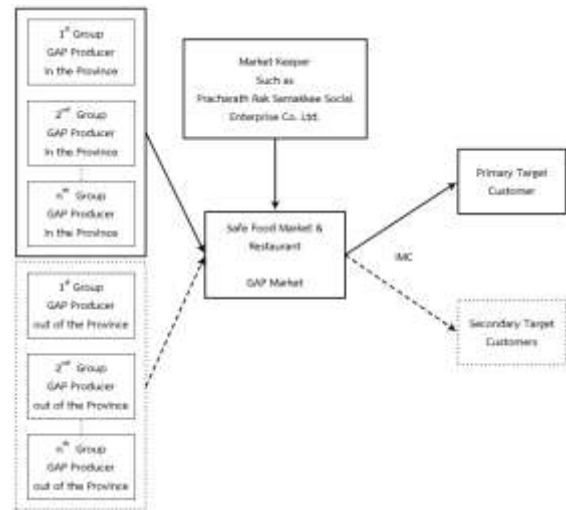


Fig.1 A model of Marketing Mechanism for Safe Food/Gap Farmer Market is located in Ayutthaya City Park Shopping Arcade, the modern shopping center in Phra Nakhon Si Ayutthaya province, and managed by Pracharath Rak Samakkee Social Enterprise (Phra Nakhon Si Ayutthaya) Co. Ltd. It opens on every Friday - Sunday.

Na Krung Kao, located in Community Enterprise Centre on Thai Highway no.347, is supported by Thai small and medium enterprise council, Phra Nakhon Si Ayutthaya. It is a new destination in Phra Nakhon Si Ayutthaya province but it has many problems from the spread of COVID-19 then it is still unpopular.

Wat Ket community market, located in Wat Ket, opens on every Sunday. Its strength is cheap and various products. After we consider the appropriate characteristics of these 3 places, So we choose Farmer Market to be the prototype and sell the GAP Product.

The GAP Products we selected to sell in Farmer Market come from Na Koo Ruam Jai Pattana Community Enterprise, GAP producer group in Phra Nakhon Si Ayutthaya. It can produce the crop such as kale, Cantonese pak choy, bitter melon, cucumber, coriander, etc.

We observed and interviewed the customers from December 2020 to March 2021 and the result showed that most of customers (92.4%) were satisfied in this market and repurchase the GAP Product (70.6%) and the revenue grow up 28.3% within 3 months of collaboration of GAP products. About safe food market, we use the training program to qualify the food business owners and food handlers to produce safe food and train them how to examine the contaminants (pesticide, bleaching agent, preservative, formaldehyde, etc.) by the test kit and how to reduce pesticide residues in fruits and vegetables by using Sodium Bicarbonate

The results are, in overall, 247 trainees are very satisfied in training program (4.28/5 point) and increase their knowledge significantly at 0.05 significant level.

Table 1. Paired sample t-test (After - Before training)

\bar{X}	S	t	df	P-Value
1.53	0.978	24.649	246	.000

In addition, our network also trains more 150 trainees. These strengthen a strong food safety and GAP network.

Finally, we use Integrated Marketing Communication (IMC) to make aware of the difference between safe food and GAP with chemical-agriculture products via various tools such as Radio, News, Website, Pamphlet, Demonstration, Television, Advertisement, Social media etc. The result is the customers have more awareness from 27.8% to 44.3%

VI. DISCUSSIONS

Based on research and development results in building a safe food marketing mechanism in Phra Nakhon Si Ayutthaya Province, even if it achieves the desired output but there are some issues that prevent the research to investigate smoothly as it should be. These issues are 1) the types of vegetables produced in this area are not diverse. There are still many types of vegetables that the consumers want but they can't produce in this province 2) during the testing of the prototype market, drought affects some vegetables to have no production. 3) because of the spread of COVID-19, it makes the consumers be more cautious in their purchases. 4) The number of farmers who were certified for the GAP standard was still small due to waiting in the queue for verification. This makes development have some limitations.

The suggestion to solve the GAP waiting queue problem is the farmers can use the same principles as the participatory certification system. (Participatory Guarantee System-PGS) by simply adjusting to the GAP standard, which is easier than having the agency as the examination and certification body but it may not be widely accepted because the certificate cannot be issued. It takes time to build acceptance of quality. Another suggestion, Farmers may apply the Sufficiency Economy Philosophy in order to have immunity during unexpected events such as the Covid-19 epidemic or draught, farmers can still have agricultural products to consume. The risk of drought will be reduced because it has its own water storage area.

VII. CONCLUSION

In conclusion, the policy maker can establish the safe food and GAP Market as shown in Fig.1 and the characteristics of the safe food and GAP Market are as follows:

- 1) Located in a place that can easily travel or in a standard place.
- 2) Primary target customers (health concern, have reasonable status) can access easily.
- 3) Received support from relevant agencies such as Pracharath Rak Samakkee Social Enterprise Co. Ltd., which was established in almost every province. and its objective is to be a social enterprise, not profit-oriented.
- 4) Create groups of farmers and producers in the area in order to have enough products for distribution and have the variety products
- 5) There is a certification body to certify the GAP standard and the seller must show the standard mark in the point of sale for consumers to see clearly
- 6) Using social networks such as Youtuber, Influencer, etc., as the main channel of public relations.

VIII. ACKNOWLEDGEMENT

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The research team would like to thank all the networks, farmers who produce food crops, restaurants which sells safe food, government agencies who provide useful information for research, and consumers who expressed valuable opinions on conducting this research.

Finally, the research team would like to thank all the experts who gave useful suggestions for this research until this research has been successfully completed.

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The increasing potential competition and innovation management of agricultural products, mangoes for export

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Abstract— This research aimed to 1) to study the influence of increasing potential competition that affect the Innovation management of the Agricultural products mangoes. 2) to study the influence of value-added that affect the Innovation management of the Agricultural products mangoes. 3) to study the influence of innovation management that affect the performance of farmers.

The sample used in this research is mango farmers. Chachoengsao Province, 280 cases by using the Mixed Method. Quantitative research using questionnaires. And qualitative research using the phenomenological interview method. The statistics used to analyze the data are statistics, percentages, averages, and standard deviations and the statistic to test an assumption is confirmatory factor analysis second order. The results of hypothesis testing showed that 1) increasing potential competition has a positive direct influence on innovation management 2) value added has a positive direct influence on innovation management 3) innovation management has a positive direct influence on the performance of farmers.

The results of the model analysis showed that the model base on assumption were in harmony with the empirical data the chi-square was 55.08, the level of significance (p-value) was 0.19, the relative chi-square was 1.17, CFI was 1.00, GFI was 0.97, AGFI was 0.94, and RMSEA 0.03. The benefit from this research can explain the casual relationship and effect of The Innovation management of agricultural products mangoes. In addition, the research result can be used to manage for guideline of capability innovation management for the organization of agricultural products mangoes for export and lead to good results.

Keywords— Increasing potential competition, Value-added, Innovation management, Performance of farmers

I. INTRODUCTION

At present, Thailand is experiencing a slow and low level of economic growth. This is due to the high dependence on foreign countries in terms of trade, investment and technology, thus causing the global economic volatility. In addition, the direction for enhancing the country's competitiveness for stepping away from middle-income countries to high-income countries is not possible to use the conventional methods of mass production with low-cost labor but it must be adjusted to upgrade the production of products and services that focus on capital, technology and innovation and more human capital. Therefore, the country needs to have higher investments in innovation and human capital; to create value for products and services from the source to the destination, to accommodate a variety of needs both general and specific individuals and organizations, covering economic, social and environmental dimensions as well as supporting domestic and international demand as part of the global value chain. Therefore, Thailand needs to raise the

country to a higher level of manufacturing and services [1] and part of the sector's drive is agricultural entrepreneurs that produces mango for export as a small entrepreneur in Thailand.

Thailand is the third largest mango producer in the world, about 2.6 million tons, No. 3, the output per rai is only 1.01 metric tons per rai which while other countries yields up to 1.97 - 1.35 metric tons per rai. The main production area of Thailand is Chachoengsao Province. It is part of the drive that generates income for farmers and generates income for the country. In addition, Chachoengsao Province is in the Eastern Economic Corridor (EEC) to upgrade the area to be Asia's leading economic zone. Develop infrastructure to support regional connections urban development and environment Implementation is necessary to build knowledge and develop personnel at all levels that are essential to support. Including raising the community level, start-up enterprises, small and medium enterprises and highly educated manpower, there is a need for a development plan to increase potential from the beginning of raw material manufacturer, develop raw materials for processing, add value and destination, and

develop people to businesses and industries of the future. To be linked in the source, middle, and destination value chain according to the integrated civil state approach and the needs of entrepreneurs. Under the concept of sustainable development including the potential of the area to build the competitiveness of the country [1].

From the Chachoengsao Province Development Plan Year 2015 to 2018, set a vision to set the direction of development, which is "the center of the Burapha Pathways towards the ASEAN Economic Community Outstanding industrial and commercial base excellent agricultural products eco-tourism meets standards, happy society" and its goal is the economy to expand steadily. The potential and competitiveness ready to enter ASEAN countries and a good environment, a happy society, comprising 5 important strategies which in the issue of strategy 2 "Increase efficiency and raise the limit the competitiveness of the safe agriculture sector" is a strategic issue that uses economic statistics in conjunction with environmental statistics by setting the strategic goal of "quality and standardized agricultural products", there are many groups of mango production for export. But there are few groups that have the potential and control the quality of production efficiently [2]. Chachoengsao Province is one of the areas where mango farmers are facing problems, namely the potential and quality control of production to be efficient. From the analysis of the export proportion and the export value of the product. Mango is likely to be Thailand's mango products from a global market perspective be in the process of product development and enhancing the quality of Thai mangoes [2].

From the reasons mentioned above, the researcher therefore realizes the importance of studies on competitiveness enhancement, value added and innovative management capability of mango agricultural products for export. The problem of this research is the potential and quality control in production in the area of restructuring the production of mango quality standard. Problems of creating value-added was created by transforming it into new products to diversify and develop fresh and frozen packaging and increase exports in the original market and expand exports in new markets. Therefore, there should be encouragement for mango farmers in Chachoengsao Province to participate in the development and upgrading of production technology potential in increasing the quantity and quality of production, processing within the community, farmers groups or as raw materials into industrial plants in processing and promote marketing in product exports. This is one of the most important economic crops in Thailand to increase export value to be sustainable and able to compete with other countries.

II. RESEARCH OBJECTIVES

The objectives of this research article were

1. To study the influence of competitive potential on the ability to manage innovation of mango agricultural products.
2. To study the influence of value-added creation on the innovative management capability of mango agricultural products.
3. To study the influence of innovation management ability on the performance of farmers of mango agricultural products.

III. RESEARCH RELATED LITERATURES

Researchers have studied theories and collected documents and related research as follows:

Increasing potential competition

Competitiveness analysis is based on the Thailand Competitiveness Matrix (TCM) concept and analysis of global demand trends. Come to group the service business out according to the attractiveness, competitiveness and trends in demand and growth rates which can be divided into 4 groups: 1) group with high potential It is a group with relatively high potential compared to other service businesses, both in terms of the potential and the potential. The competition in the region is tourism business and wholesale-retail business 2) a specific business group with potential as a group with moderate potential, expertise should be added in some groups that have the potential to be more outstanding, including transportation and communication business, real estate business, construction business, and educational service business 3) Potential groups that focus on serving in the country or public service are financial institutions, health and social services and household service groups and employment. 4) New business groups, a business sector that has a tendency to increase significantly in demand and growth as the environment and globalization change [3].

Moreover, the competitiveness analysis concept using the diamond system model [4] to develop a business environment analysis model based on the diamond model concept to analyze the business environment. There are four main components: 1) Input factor which is the resource factor that goes into the raw material that enters the industry, human resources, technology capabilities, and infrastructure in various fields including sources of funds that affect the business operation of the organization. 2) Strategy, structure and competition of the organization. This is the context and atmosphere of business competition. 3) Supporting and related businesses which is the existence of various businesses, related to industry organizations. This includes suppliers and other industries. 4) Demand conditions are attitudes, tastes and needs of domestic consumers towards

products and services. Consumer demand has a direct impact on products and services. Meticulous demands force organizations to produce products that meet consumer demand [4].

On the other hand, researchers have defined competitiveness as business competitiveness. In the analysis of the business environment to assess the competitiveness of the business in production, demand-side, competition and strategy, as well as government policy.

Value added

Value added can be done in 4 cases: product value, service value, personnel value, and image value [5]. There are 4 ways to add value to the product to be accepted in the market: 1) Product design and packaging, there are commercial brands and beautiful packaging designs suitable for distribution. 2) Product processing, packing sachet for sale, product development and innovation to achieve internationalization 3) Procurement of distribution locations with distribution through online media including fairs for sale at trade shows and sales to tourists. 4) Public relations products, in addition to various online channels are used to promote products [6]. On the other hand, researchers have defined the meaning of adding value means creating added value to the product in product design, product processing, providing sales locations and, promoting products to be marketable.

Innovation management ability

Innovation management capabilities are the ability to transform concepts and knowledge into product creation. Processes and systems that continue to benefit entities and stakeholders [7]. Innovation competence can be described in many dimensions both strategies that promote innovation, organizational behavior, working process, products and new market pursuits or in terms of vision and strategies that support innovation, talent and creative management resources, organizational structure and system, working atmosphere, corporate culture [8]. In terms of doing business, it may be faced with more and more competitive conditions. The development of innovative capabilities helps to increase the competitiveness of the enterprise. From the development of processes, products and services that are superior to the competition in the industry [9]. Corporate innovation is the overall innovative ability of the organization to bring new product to market through a strategic orientation involving innovation behavior and processes [10].

On the other hand, researchers have defined innovation management capabilities as a means to promote product quality enhancement with respect to product development. Encourage work systems and processes, being creative, new ways of working, accepting new ideas and ways of working.

Moreover, a variety of innovative marketing channels have been developed including enhancing the quality of service.

Performance of farmers

Traditional performance measurement focuses on financial performance measurement caused limitation because measurement does not fully reflect organizational capabilities [11] ; [12], an effective organizational performance measurement system can measure results in two ways: measure economy with such metrics, financial ratios, profitability market share growth and the measure of satisfaction to the stakeholders of the organization, including customer satisfaction, employee satisfaction, social performance and environmental performance [13] ; [14].

On the other hand, the researchers define farmer performance as a means of farmer performance in terms of monetary performance: profit, sales, operating income, goals and non-monetary performance, which is the ability to meet customer needs. Creating customer satisfaction, old customers keep returning or having a growing number of new customers.

The review of related concepts, theories and research can be summarized as research hypotheses, including

Hypothesis 1: Competitiveness has a positive direct influence on the ability to manage innovation.

Hypothesis 2: Value-added creation has a positive direct influence on the ability to manage innovation.

Hypothesis 3: The ability to manage innovation has a positive direct influence on the performance of farmers. From reviewing concepts, theories, and documents throughout relevant research to create a research framework for study. Increasing competitiveness, value added and ability to manage innovation of mango agricultural products for export, as shown in Figure 1.

Research conceptual framework



IV. RESEARCH METHODS

A. Population and sample

The population used in this research is mango farmers in Bang Khla District, Klong Khuean District, Plaeng Yao District, Chachoengsao Province, with a total of 7,168 cases (Data as

of April 4, 2020) [15], which is divided into Unit of Analysis of this research is an individual system. Sample group is a group of farmers which is located in the district in Bang Khla District Klong Khuean District, Plaeng Yao District, Chachoengsao Province. The researcher considered the nature of the research data that would require advanced statistics. Therefore, the sample size was determined in accordance with the preliminary statistics. Using a large sample for determining the sample size. The number of samples was approximately 20 subjects per sample parameter [16]. 14 variables were used, and the sample size was 280 samples. Therefore, the research used 280 samples. According to the concept of [16], farmers were assigned as respondents in the research.

B. Research tool

This research is a research tool based on the quantitative research methodology. Using questionnaires which covers the definition of the variables in both groups studied the researcher used a questionnaire to collect opinions of mango farmers. The questionnaire is characterized by a 5-level rating scale covering operational definitions.

Building and testing the quality of research tools

1. Creating a research tool with steps as follows: 1.1) Creating a quantitative research tool. The researcher builds on the conceptual framework. From the study of concepts, theories and related research to develop a research framework and to define the nomenclature of variables the guidelines were used for creating questionnaires and questionnaires in research. 1.2) Prepared questionnaires to collect data for quantitative research. Indicators for all 14 observable variables were established with content consistent with the research objective and terminology definition. To use for hypothesis testing which variable is measured by operating definition.

2. Quality testing for research tools, the steps were: 2.1) Content Validity test by using a questionnaire created for 3 experts to check the consistency of questions with objectives, conceptual frameworks in research as well as definitions of research variables and bring to improve questions the consistency index was determined between the question and the objective characteristics of the research using the formula IOC (Index of Item Object Congruence) = $\sum R / N$, and compiled the opinions of the experts individually. The index of consistency between questions must be at least 0.50 to be considered consistent with the research objectives and terminology. And can be used as a question in a questionnaire [17]. The above values between 0.70 - 1.00 can be used as a question. 2.2) Verifying the reliability to test the accuracy of the instrument from an experiment by trying out on agriculture, not a real sample of 30 people using the Alpha Coefficient analysis of the Cronbach method [18]. The

confidence value of the whole questionnaire must be 0.70 or higher to be considered acceptable [19]. Test the quality of the research tool by checking for confidence. Using the alpha coefficient according to the Cronbach method it was found that the confidence of the questionnaires divided by each area was between 0.80-0.90, which was in accordance with the requirements. Therefore, such questionnaires can be used to collect research data.

C. Data collection

The researcher conducts the data collection. The details are as follows: 1) using questionnaires to collect information from farmers. The research had 14 observable variables with the sample size should be 10-20 times that of the observation variable [20] and the sample size was 140-280. Collect quantitative research data. It appears that there are 280 questionnaires that are valid and complete, which can be further analyzed.

D. Data analysis

Researchers have analyzed the data using descriptive statistics and the data obtained to analyze the statistical values consisted of frequency, percentage and standard deviation by statistical program and Confirmatory Factor Analysis and Structural Equation Model (SEM).

V. RESULTS

Total number of respondents in this study was 280. The general data of the respondents found that most of them were male. Most of them are older than 50 years, 72.50%. Most of them have 11-20 years of experience in farming, accounting for 27.50%. Most, accounting for 82.14 percent, most of the average annual income of farmers. 100,001-150,000 baht, and the most have 20 years' experience in mango cultivation, 36.43 percent.

The results, opinion levels in various fields

1) Opinions on the causal factors of innovation management capacity

1.1) Opinions on causal factors, competitiveness, the overall level was at the moderate level (= 3.30, SD = 0.18). When considering each aspect, it was found that the side with the highest mean of opinion was the input factor (= 3.85, SD = 0.56), followed by the competition and strategy (= 3.46, SD = 0.45), respectively.

1.2) Opinion on the causal factor of value added. Overall, it was at the moderate level (= 2.91, S.D. = 0.64). Distribution locations (= 3.28, S.D. = 0.98), followed by product promotion (= 2.95, S.D. = 0.82), respectively.

2) Results of study on the ability to manage innovation. Overall, it was at the medium level (= 2.62, S.D. = 0.63). When considering each aspect, it was found that the side with

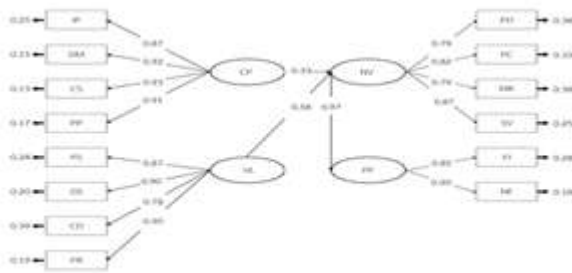
the highest opinion of the average was service. At high level (= 3.30, S.D. = 1.20), followed by process (= 2.96, S.D. = 1.04), respectively.

3) Results of studies on the outcomes of the ability to manage innovation.

3.1) Opinion on results of farmers' performance. Overall, it was at the moderate level (= 2.87, S.D. = 0.69). When considering each aspect, it was found that the side with the highest opinion mean was non-financial performance (= 3.14, S.D. = 0.83), followed by financial performance (= 2.59, S.D. = 0.80), respectively.

The study results of the influence of the variables on the research hypothesis

From the analysis of the causal relationship structure model increasing competitiveness, value-added and innovative management capabilities of mango agricultural products for export. Can be shown as in picture 2.



Chi-Square= 55.08, df=47, p-value=0.19553, RMSEA=0.025

The statistical values used to investigate were as follows: Chi-square value was 55.08, and was statistically significant at 0.19 level (p-value was 0.19). Chi-square value was 1.17. The relative coexistence index (CFI) is 1.00, the eccentricity index (GFI) is 0.97, the eccentricity index (AGFI) is 0.94, and the square root of the mean square error of the estimation (RMSEA) is 0.03, which passes All criteria Shows that the model is consistent with the empirical data The results of the analysis of the causal relationship model and results are detailed, competitive potential enhancement, value added and innovative management capability of mango agricultural products for export. The set of variables with forecast coefficients are as follows: Innovative management of 0.77 can explain the variance of the causal factors to innovation management at 77 percent, and farmer performance of 0.94 can explain the variance in the performance of farmers by 94 percent.

Table 1: Direct influence (DE), total influence (TE) and quadratic multiple correlation coefficient (R²) of the causal relationship structure model, innovative management capability of mango agricultural products for export.

Antecedents	Consequences					
	Innovation management (NV)			Performance of farmers (PF)		
	DE	IE	TE	DE	IE	TE
Potential competition (CP)	0.33**	-	0.33**	-	0.32**	0.57**
Value-added (VL)	0.58**	-	0.58**	-	0.32**	0.57**
Innovation management (NV)	-	-	-	0.97**	-	0.97**

**p<0.01; DE is direct influence; IE is indirect influence; TE is total influence

From Table 1, it was found that the variables that were constituents of cause and outcome variables, increased competitiveness, value added and innovative management capabilities of mango agricultural products for export developed had direct influence and indirect influence. And combined influence Divided by research hypothesis. The details are as follows

Hypothesis 1: Increasing competitiveness has a positive direct influence on innovation management.

It was found that competitiveness potential (CP) was found to have a positive direct influence on innovation management (NV) with a direct influence of 0.33 and a total influence of 0.33, statistically significant at a scale of 0.01, so the research hypothesis was accepted at 1.

Hypothesis 2: Value added has a positive direct influence on innovation management.

It was found that the value added (VL) was found to have a positive direct influence on innovation management (NV) with a direct influence of 0.58 and a total influence of 0.58, statistically significant at the level of 0.01. 2

Hypothesis 3: Innovation management has a positive direct influence on the performance of farmers.

It was found that the management of innovation (NV) had a positive direct influence on the performance of farmers (PF) with a direct influence of 0.97 and a total influence of 0.97, statistically significant at the level 0.01 accept research hypothesis 3.

VI. DISCUSSIONS

Hypothesis 1: Increasing competitiveness has a positive direct influence on innovation management.

From the research results it was found that Increasing competitiveness has a positive direct influence on innovation management. This is due to the fact that farmers are aware of changes in current conditions, and need to develop competitiveness, businesses that need to adapt for sustainable survival. Competitive in business. This includes analyzing the business environment to assess the competitiveness of the business in production, demand-side, competition and strategy, as well as government policy. This is consistent with research by [21] showing that Analysis of the business

environment has four main components: the input factor, the resource factor that goes into the raw material segment. Human resources Technology capabilities Strategy, structure and competitive environment of the organization Supporting and related businesses and demand conditions, ie attitudes, tastes and needs of domestic consumers towards products and services.

Hypothesis 2: Value added has a positive direct influence on innovation management.

From the research results it was found that Value added has a positive direct influence on innovation management. This is because the farmers are aware of the value-added creation. To increase the product's capabilities in product design, product processing, providing sales locations and promoting products to be marketable. This is in line with Prunea's research [22] in creating value added to the product to be marketable through four methods: product design and packaging. There are commercial brands and beautiful packaging designs suitable for distribution. Processing of packaged products for sale is product development and innovation to achieve internationalization. Distribution location with distribution through online media and product publicity by using various online channels.

Hypothesis 3: Innovation management has a positive direct influence on the performance of farmers.

From the research results it was found that Innovation management has a positive direct influence on the performance of farmers. This is due to the introduction of innovation to develop and improve the service process, including differentiating and adding services to meet customer needs. Also innovation the results of the development and introduction of new products in technology help them meet customer needs and create competitive advantages and, more importantly, increase the profit of farmers groups or farmers' performance. Better this is consistent with the research of [23] ; [7]. Efficient performance is holistically measurable in two areas: economy with such metrics, financial ratios, profitability market share growth and the measure of satisfaction to the stakeholders of the organization, including customer satisfaction. Employee satisfaction social performance and environmental performance.

VII. CONTRIBUTION

1. Policy Contribution for Research

1.1 Knowing the competitiveness to add value added and the ability to manage innovation of mango agricultural products for export which can develop local competitiveness to be able to develop sustainable mango agricultural products by

themselves. It can also enhance competitiveness. Value added and innovative management capability of local wisdom in mango agricultural products leading to added value creation for export and has synthesized a molded model to bring the model more competitive value added and ability to manage innovation of mango agricultural products. Transmitted to the practice of enhancing the potential to promote the export of mangoes to meet the standards of the world market.

1.2 Know the guidelines for enhancing the innovation management potential of local wisdom. To add value to agricultural products and provide training for mango farmers for export. The results obtained from the research can be manipulated for the producer community, which is social contribution to driving the success of the farmers group, together with the descriptive spatial research results in the context of the community. Contributing to the community towards the sustainable development of the community.

1.3 He learned of being a model farmer in innovative management of local wisdom in agricultural products of Chachoengsao Province. Including the benefits of applying them to enhance the concept and development of sustainable development.

2. Management Contributions for Research

The ability to manage innovation of local wisdom in the products of mango agricultural products. This allows farmers, entrepreneurs and personnel to be involved in developing new market channels to change the marketing paradigm in consumer, information technology and communication. Including technology that will bring about innovation using online channels. The farmers must adapt to keep pace, which is an important part of the development of entrepreneurs to be equal to foreign countries For changing the form of working methods that allow farmers to participate in the creation of a new working model. In designing, improving and improving the quality of work together. There are many innovative and creative techniques without blocking useful opinions. And for enhancing product quality, when farmers have internal cost control, product quality should be raised. Analyze the causes of impact on production costs, cost reduction, waste reduction methods, and establish generally accepted standards as productivity increases, product quality enhancement has to start at the micro level, ie from the individual level, so farmers have to adjust their roles in order to raise the quality of their products without waiting for the government. Quality and efficient inputs to increase product value.

3. Theoretical Contributions

This study confirms components of competitiveness, value added, and manageability innovation of mango agricultural products that affect farmers' performance and the causes of

organizational performance. And it brings theoretical benefits, such as the integration of concepts and theories about competitiveness. Theories of added value Concepts and theories of innovation management of it is applied by considering the ability to manage innovation. Come as a pass variable and in the study of the effect factor, which is the operation of farmers. This study is a casual research to prove the relationship and influence between the competitive potential variable, the value added and the performance of farmers. Functions focused on testing the mediator of innovative handling capabilities. It is also a study in the context of mango farmers. Not much research has yet been done on the ability to manage innovation as an intermediate or transmission variable. This is because, in the past, most researches have studied the ability to manage innovation. It is an antecedent variable, which the above findings can be further applied to study the influence of this variable with other variables.

Suggestions

Policy recommendations

1. An agency responsible for supporting and involved in innovation management capability of local wisdom, Thai farmers group. Able to use information to guide the knowledge of community leader's president of community enterprises in managing to create innovation in performance for farmers.
2. Responsibilities are planned and established at the community level, village, and sub-district by providing a division responsible for organizational innovation management of local wisdom, Thai farmers group. So that the operation takes place in the long term. The main responsible person may be the community leader. Chairman of the Community Enterprise and facilitating actions with both internal and external partners improve the level of cooperation and communication to the international level. To increase the capacity of the community to achieve sustainable success.
3. Ability to manage innovation of local wisdom to farmers groups within the network of agricultural entrepreneurs. To create cooperation to act as a center for information exchange Knowledge and opinions establish a central database system to act as a center for information exchange knowledge and opinions.
4. The government sector should have a policy to accelerate, promote and support the innovation development of local wisdom, Thai farmers groups with links with private sector agencies as well as various benefits. This will enable the development of innovations that truly meet the needs of farmers.

Management recommendations

1. To provide information for community leaders the chairman of the farmer group community enterprise plans to apply the principles of competitiveness for more efficiency. This will positively affect the performance of farmers. Provide opportunities for farmers groups to participate in competitiveness development, businesses that need to adapt for sustainable survival.
2. To provide information for community leaders Chairman of the Community Enterprise Farmers Group There is a promotion in various areas to create added value, which makes community leaders Chairman of the Community Enterprise Realized the importance of product processing, product design, distribution location including promoting products to create an effective value-added operation system.
3. To provide information for community leaders. The President of the Farmers' Community Enterprise was aware that the community would have the potential to create learning process from farmers group In the field of work processes innovations or techniques and methods of working that cannot be learned is defined as knowledge gained through the processing of knowledge. Exchange of knowledge In order to be able to promote farmers' groups to be successful in business.
4. To provide information for community leaders, the chairman of the farmer group community enterprise has been involved in creating and developing new marketing channels. Including technology that will lead to innovation in the use of online channels and social networks as the farmers' groups, they have to adapt to keep pace and have a vision to play an important part in product development to be comparable to foreign countries..

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The effective improvement of professional sports association key performance index to promote economy and society development Thailand policy 4.0

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Abstract— *The objective was to study the key performance index improvement of the professional sport in order to promote the economy and society as the Thailand policy 4.0. This study employed a qualitative design, and the data collection was made by the in-depth interviews and focus group with the 13 representatives of the sport association in Thailand. The research finding can be concluded which were as follows; 1. The index were not usable for the sustainability. 2. The understanding in the difference sport should define the stakeholders for receiving the comments from all the relevant people. 3. Supporting the grassroots is the strong foundation of the professional sport. 4. Driving the knowledge of understanding in the entrepreneur driven proposition. 5. Social media, gadget, application, live streaming were affected to the professional sport, and to connect the sport to the world.*

Keywords— *Key performance index, Professional Sport, Thailand policy 4.0*

I. INTRODUCTION

Professional athletes play sports for a living. They have achieved top standing in their chosen field through years of training. Professional athletes are people with natural talent, stamina, and competitive drive. They have excellent reflexes and coordination and are well disciplined when it comes to rigorous practice and training. (1)

The popular of the professional sport player in Thailand relates to how much people are involved with. The most famous sport is Thai Premier League, Golf, Tennis, Snooker, Car racing, Volleyball, Sepak Takraw, motorbike racing, relatively. (2)

The promoting and developing the professional sport are under the act of promoting the professional sport (2013), the policy, the strategy, and the master plan of promoting and developing the professional sport which is relevant to the national strategy (2017-2037), and the objective is to have the target of developing the country with sustainable vision. (3)

Under the monitoring of Sport Authority of Thailand, and in order to have the standard for the professional sport which is the benefit for the athletes in term of supporting and developing with sustainability. The profession sport standard key performance index is needed, which are consisted of 8 criteria 1) Shall need to comply and follow the professional

sport act. 2) The financial system shall be reliable and can be checked. 3) Defining the measure of match fixing prevention. 4) The number of referees those who have the international standard. 5) The doping control prevention 6) The number of the coaches those who passed the international conference. 7) Hosting the tournament, and 8) The sport broadcasting through the media.

Nevertheless, some professional sports still need to be supported by the public section which cause the negative impact for the sport industry in the past few years. Some sports need to rely on the tourism industry. It shows that all the executions still lack of the impact assessment that are form the professional sport in all aspects. (4)

With those reason, the researcher was interested in study the increasing of the index effectiveness of the professional sport in order to create the supporting in the social & economic development as Thailand policy 4.0 for being reverse information in defining and announcing the category of the professional sport. Furthermore, it is also the data for improving the assessment index for having the appropriate in the future.

II. RESEARCH OBJECTIVES

To study the increasing of the effectiveness index of the professional sport association in order to promote the economic & social development as Thailand Policy 4.0.

III. RESEARCH METHODS

Participants. The 13 key informants those who were representative from the professional sport association, and they were recruited using purposive sampling.

Procedures The in-depth interview by face to face was used in this research.

IV. RESULTS & DISCUSSION

The researcher can be described into two main area which were as follows:

1. The index criteria that has been used for the assessment of the professional sport operation couldn't be measured, or supported the professional sport development with sustainability. It was just the criteria for asking the sponsor in hosting the sport events. The index couldn't tell the outcome, predict the changes and the achievement of the professional sport each year. As the statement from one of the key informants which said that "The basic of the professional sport come from the sport for excellence. It has been changed only for the name, but not for the working pattern. Everybody sees the same picture as the amateur, not the professional." There was also support in the same direction which said "It is normally to have the deferent mindset for different person. They have different protocol, so the working type will be different as well." which related to the work of

2. The point of proposing in increasing the effectiveness index for promoting the economic & social development as Thailand policy 4.0.

2.1 The understanding about the nature of different sport: Should define the stockholders for receiving the opinion from the relevant person in the aspect of the eco system in term of the professional sport for having the interaction in giving the information about the working process. As the statement from one of the key informants which said that "Each index has totally different. Therefore, what we have now, it's useless. We need to discuss more the appropriate index." Another key informant commented that "Different sport has different regulations in their own way. The standard index will make more difficult for those who are working" which related to the work about the sport ecosystem that focus on formalizing the sub discipline of study on sport, the natural environment, and the relationship between the two. (5)

2.2 The grass root supporting: The strong achievement of the professional sport come from the grass root supporting. Started from the local people, and convinced the foreigners to attend the sport event which brought the income for the host country, such as the accommodation fee, the food fee, the ticket fees, and so on. As the statement from one of the key informants which said that "The sustainable of the professional sport needs to have the community stadium

which is made by the local, not the government which means it has to be invested by the private section only same as Japan." Another informant said that "If we want to have the world class infrastructure standard, we need to build the stadium as the stable center which have the centerpiece in every parts of Thailand." This result was related to the work about the three dimension model for grassroots sport which the result was that a professional practice paradigm shift is needed in the grassroots sports to a more holistic approach.

(6)
2.3 The index of the driving knowledge and the understanding in managing the sport organization or the sport association in order to enable to assess or predict the fundamental factor of the working process towards the economics by creating the understanding about the entrepreneur driven proposition. As the statement from one of the informants which said that "The administrators need to have the fundamental knowledge in business. They need to understand the working structure of the organization." Another informant which said that "The strategy setting in sport shall need to have the business consuler who specializes in the world class sport context which he/she is able to define the right direction for the organization." There was one previous result that was relevant to this result which was about Sports Organizations as Complex Systems: Using Cognitive Work Analysis to Identify the Factors Influencing Performance in an Elite Netball Organization, and the result was the implications for understanding and optimizing elite sports organizations are important factor for achieving the organization mission. (7)

2.4 The index of measuring the new technology information, such as Social media, Gadget, Application, and Streaming Server which cause much for the professional sport as the connectors between the sport audience and the sport show, or the famous professional athlete. As the statement from one of the informants which said that "The technology supporting is for decreasing the human error problems." Another informant said that "The subcommittee shall need to put the right man on the right job. Those who will be qualified have to be in the sport context, and shall not be the conflict of the interested person." There was one quality research that was relevant to this research which was about sport and social media research: A review, and the result was that social media research in sport management aligns with service-dominant logic and illustrates the role of social media in cultivating relationships among and between brands and individuals. Interaction and engagement play a crucial role in cultivating these relationships. (8)

V. CONCLUSION

From the result found that to improve the effectiveness index for the professional in sport needs to be elaborate among the private section, the public section, and including with the people those who are willing to see the concrete driving for the benefit of the country. Those 4 key factors were the must for all of us that we have to make it happen, if we want to see “The real sport business” that all the professional athletes are able to create their own income with the sustainability.

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The Problems, Causes, and Solutions in Online Learning of the Fourth-Year Students of the University of Phayao during the Lockdown Period of the COVID-19 Pandemic

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Abstract— The study aimed to investigate the problems, the causes, and the solutions in online learning of the fourth-year students of the University of Phayao during the lockdown period of the COVID-19 pandemic. A questionnaire was used as the research instrument to gather the data. The questionnaire was divided into four parts: firstly, General information of respondents, the second, Condition of online learning during the lockdown period of the COVID-19 pandemic, the third, Problems in online learning during the lockdown period of the COVID-19 pandemic, and lastly Solutions to online learning problems during the lockdown period of the COVID-19 pandemic. The respondents answered and submitted the questionnaire through Google Form online. The results were analyzed via SPSS Statistics software. The findings illustrated that the main problems of learners were the problems of the costs, participation, and enthusiasm in online learning. Consequently, the students desired to solve the problems of online learning for improving to be more participation, interesting, and be able to reach the knowledge from a variety of resources. The problems still included in learners' environment, contents, and measurements. Thus, these problems can be seen in the results whether learners required to autonomous study, flexibility, have a variety of learning types, and support the examinee in the examination if an unexpected situation. The data from the findings could be a guideline for improving the curriculum, online learning systems, platforms, and other parts to be more effective

Keywords— Problems/Causes/Solution, Online Learning, University of Phayao, Lockdown Period of COVID-19 Pandemic

I. INTRODUCTION

COVID-19 is a disease, a new form of coronavirus. The whole of citizens worldwide has affected by the spread of coronavirus disease (COVID-19), including in Thailand. COVID-19 has been defined as the global pandemic disease, declared by The World Health Organization (WHO) on 11th March 2020 that the pandemic disease appeared (Cucinotta & Vanelli, 2020). The outbreak of the COVID-19 pandemic disease in the world has changed deeply in various parts, even the lifestyle of people and especially in education.

The critical impacts of the COVID-19 appeared in many sections such as in economy, environment, and including educational organizations from worldwide (Mailizar, Almanthari, Maulina, & Bruce, 2020). The whole schools, colleges, and universities around the world were closed by the effect of the COVID-19 pandemic to follow the concept of social distancing (Toquero, 2020). Many policies that appeared from the government and other organizations

including universities relate to the concept of social distancing and physical distancing to all citizens to prevent the virus from spreading widely. The University of Phayao is one of the universities in Thailand that was closed and complied this concept.

It is the considerable management of the learning model policy, the pandemic disease provided a gigantic challenge to educational-systems (Daniel, 2020). Thus, it brings to the changing as a sudden alteration (Crawford, Butler-Henderson, Rudolph, & Glowatz, 2020). Therefore, the educational organizations around the globe aimed to use the knowledge and resources to establish online learning for students (Kaur, 2020).

The online instructional methods have already been admitted before, as a capable tool for learning; nevertheless, with the sudden transition and novel methods for students. It made online learning systems seem to be difficult for students as in parts of the lack of accustomed to using online systems, instructors and learners lack the opinions exchange, the

stability of the communication, the chance to access the learning and including time management.

With the rapid transition, various issues appeared to affect education efficiency directly. The major issues were a lack of preparation for both educational organizations and students. However, there are various factors as suitable curriculums and activities for online learning, that motive the interaction between teachers and students. Regular evaluation cannot be used in online learning. The environment of students, a place to study that proper without the distract because of the student study at the shelter. The tools that have enough efficiency to able to access the learning as a smartphone, laptop, and internet. The issues still including mental, the stress that arises in the students when they study by themselves with the long duration in front of the monitor. All the issues impact straight to the effectiveness of the learning.

In order to arrange the learning to follow the curriculums which in the middle of the situation of the COVID-19 pandemic, the University of Phayao as a tertiary education institution provides the curriculum for students to study through the online systems. All students are studied along with their curriculum in the 1st semester of the academic year 2020. In the case of the fourth-year students, Bachelor of Education (B.Ed.) Education (English) and Bachelor of Arts (B.A.) English in the 1st semester of the academic year 2020 at the University of Phayao, online learning used by various online application, namely by using: Line Application, Zoom Application, Microsoft Teams, Google Meeting, and Google Classroom. All the applications used for learning, meeting, assign tasks, including evaluation as an exam.

As the cited studies from Endang Hermawan, Aldim, Irwandi (2020) "Effectiveness of Online Learning During the Covid-19 Pandemic Period: An Online Survey" to follow the home learning policies that online learning used the Zoom application for learning in real-time and other applications for communication as WhatsApp in this study to provide other knowledge materials and assign tasks. The consequence of the study showed that the online learning by used the Zoom application and WhatsApp in theoretical and theoretical courses and practicum had a good result, on the other hand, the online lecture training and other related course subjects are less effective.

The study aims to improve and develop online learning to higher efficiency, for the purpose of supporting unexpected situations as in the COVID-19 pandemic and able to proceed to learn ordinary in various situations. Therefore, the researcher is interested to survey the online learning problems and causes, that appeared in the online learning methods. The studied in case of the fourth-year students, Bachelor of Education (B.Ed.) Education (English) and Bachelor of Arts

(B.A.) English in the 1st semester of the academic year 2020 at the University of Phayao, that will be shown the data of the result as a guideline and advice for improving and developing the curriculum consistent with online learning to be more performance.

II. RESEARCH OBJECTIVES

The study aims to explore the problems, the causes, and the solutions in online learning through the internet during the COVID-19 pandemic of fourth-year students, Bachelor of Education (B.Ed.) Education (English) and Bachelor of Arts (B.A.) English in the 1st semester of the academic year 2020 at the University of Phayao

III. LITERATURE REVIEW

Online Learning or E-Learning

Distance education became uncomplicated with the fast developments in technology (McBrien et al., 2009). All of these online learning, web-based learning, and blended learning have regular efficacy to connect the computer along with the network, which able to make the learning can be learn from anywhere and anytime (Cojocariu et al., 2014). Online learning considered a tool that able to establish the method of the learning and encourage the center to the student for increasingly novel, and increasingly flexible. Online learning is determined as the learning that able to learn in real-time and able to learn at any time depending on systems in online learning, therefore there are many devices (smartphones, laptops, etc.) with the internet. The learning can continue at all the time and anywhere, learners autonomous to learn and able to respond to teachers and other learners" (Singh & Thurman, 2019). The learning conducted at the present time called a synchronous structure that the learners participate in the present time or the live learning class, there are suitable for responding and communicate with other persons including the Instructor at the present time but asynchronous learning is the learning that not the present time. Therefore, it is not suitable for communication and interaction. In such learning, learning content is not suitable to use along with live classes. It showed whether that could be used in other learning systems. All of these processes of asynchronous not to use in real-time (Littlefield, 2018). Synchronous systems have the efficacy to make several benefits in society whether communicate or participation (McBrien et al., 2009). The learning systems affected by the deadly virus spread, therefore online platforms became necessary. It can be seen that the discussion by using online platform systems with almost 50 learners is capable to do, interactions with learners in classes made the participation of students, internet systems

became one of the useful learning systems, not only laptop also have another device to access the learning and lecturing, have a capacity to watching already recorded lectures, and students can feedback including able to receive assignments (Basilaia et al., 2020).

Difficulties and Problems in Online Learning during the COVID-19

The Main Factors Influencing the Effects of E-Learning and Online Instructions

As shown in the research that instructors participated in the Chinese Network of Internal Quality Assurance Agencies in Higher Education, the significant essences that affectation to the online instructions can be seen with five points of view below;

The first point of view, learners' learning autonomous with their own abilities that directly affectation the online instructions. The learners who capable to study with themselves, good at abilities, and good behaviors online learning (such as participate in on-time classes, pay attention and intention in classes)

The second point of view, the teaching inputs of instructors considered as the main factors including the steadiness of platform and pedagogy techniques. All of the essences remain comprehensive the pedagogy opinion and vitality that instructors provide, the quality of pedagogy platforms such as the function and stability. Especially in parts of pedagogy techniques and the methods that instructors use in their class. The third point of view, the policy of the school considered as the main factors including support in part of programs and tools. Therefore, the direction could be followed with a school policy that supports online instructions, internet access, steadiness, the syllabus that proper for online systems and tools encourage.

The fourth point of view, the training about online teaching platforms and technical equipment. Especially in teaching online, instructors necessary to use the tools for teaching with familiarity. It including courses supporting with teaching resources. However, students should be familiar with the learning tools for learning effective.

The fifth point of view, the teaching evaluation of the classroom considered as the main factor. Therefore, it follows the suitable evaluation methods, manages and supports the classroom teaching system, institutes the course assistants for managing the evaluation methods in the classroom.

Factors above relate to the article "E-Learning and Online Instructions of Higher Education during the 2019 Novel Coronavirus Diseases (COVID-19) Epidemic"

That the factors are: 1. Students' autonomous learning; 2. The teaching inputs of instructors; 3. The policy of the school; 4.

Familiarity in online teaching platform; 5. The teaching evaluation

The Main Problems in E-Learning and Online instructions

As shown in the research of the essence that instructors from the Chinese Network of Internal Quality Assurance Agencies in Higher Education, online instructions effected. The main determinants that affectation can be seen with five points of view below:

The major issue of the first point of view, the materials that used in online learning systems not proper. Students learning with themselves, therefore it is the individual ability of each student such as the weak ability it may become do not encourage habits in online learning.

The second point of view, the issues of online instructions such as bad network signal and bad steadiness. The learning platform is one of the main problems, the imperfect and poor stability including the problems in communication.

The third point of view, the issues of online learning systems that can be seen the learner lack of participation, lack of resources for online learning, and lack of learning space environment, and especially lack of terminal equipment for supporting courses and students.

The fourth point of view, the main issues in online learning whether lack of area for instructors' teaching and tools, lack of encouragement in part of online technical caring, students' lack of skill in teaching platforms and tools, the methods that used for evaluation are not proper for online learning system, procedure and technique are not proper, consistent, and teachers lack the skill of using platforms.

The fifth point of view, the main issues on online learning systems were lack of staff to assist in the syllabus, lack of stipulation to encourage online learning systems, and especially lack the proper viewpoint and actively of instructors in pedagogy.

Problems above relate to the article "E-Learning and Online Instructions of Higher Education during the 2019 Novel Coronavirus Diseases (COVID-19) Epidemic"

That the problems are: 1. Contents of online teaching not suitable; 2. Problems of tools and systems; 3. Lack of student participation; 4. Insufficient tools and skill for online learning; 5. Lack of course assistant

Solutions of online learning

According in the schools in North Macedonia study, there are many countries fight against the COVID-19 that bring many of schools closed and taking place online. The problems appeared such as the amount of content, online evaluation, insufficient of instructions that made learners encounter with the obstacles in the new learning environment. While

considering the issues we were researching, and these are suggestions for improving online learning.

Systemic solutions from the Ministry of Education and Science and the Bureau for Development of Education should develop suitable platforms with a specific given curriculum for online learning, including suitable evaluation methods for effective online learning.

Vulnerable families should be supported in part of the tools and ability to be capable to encourage their children for learning online.

Learners should not be only evaluated with the grades upward descriptively.

If the condition changes, that should be increasingly focused on the main purposes, by evaluating and sharing data from several areas about the advantages and disadvantages that happened. It should consider every section such as students, parents, and teachers.

After reviewing various solutions, it appears that the solutions could be parted into 3 parts: 1. Improving the curriculum and platform consistent and suitable; 2. Supporting tools and equipment for more access; 3. Consulting and supporting in every section

IV. RESEARCH METHODS

Sample

The sample used in this study is the fourth-year students of the regular program, Bachelor of Education (B.Ed.) Education (English) and Bachelor of Arts (B.A.) English in the 1st semester of the academic year 2020 at the University of Phayao. In this study, the sampling method is snowball sampling. Which the researcher selects samples to be in a study and then ask those samples to select additional samples. In this study, the snowball technique can continually go on and on till the numbers of sample size can increase to be sufficient. That there were 50 participants.

Research Instrument

The instrument used in this study is a questionnaire about the problems in online learning of the fourth-year students, of the University of Phayao. This questionnaire reflected the life experiences including problems that students encountered from online learning. The questionnaire is divided into four parts, as shown below.

Part 1 General information of respondents

Part 2 Online learning and teaching conditions during the COVID-19 pandemic.

Part 3 Problems of online learning and teaching during the COVID-19 pandemic.

Part 4 Solutions to online learning and teaching problems of the fourth-year students at the University of Phayao.

The questions are divided to 35 questions

1. Problems of learners
2. Problems of learning environment
3. Problems of content
4. Problems of online learning systems
5. Problems of measurement and evaluation
6. Solutions to learners' problems
7. Solutions to learning environment problems
8. Guidelines for solving problems of online learning systems
9. Guidelines for solving measurement and evaluation problems

Construction of research tools

The questionnaire is established based on the following procedures.

1. In this study, the questionnaire established by reviewed and analyzed from various research topics related to online learning during the COVID-19 pandemic from a variety of resources.
2. Then the questionnaire examined by three experts in each question to evaluate the content validity and suitability.
3. The questionnaire was improved by the guidance of the advisor and the three experts suggestion

Data collection

In this study, the researcher used Google Forms to gather data from participants. The researcher provided Google Forms as an online instrument to distribute the questionnaire toward the problems in online learning during the COVID-19 pandemic. There is an explanation in every step stated in the questionnaire to made participants understand clearly.

Data analysis

After receiving and checking the data, each part of the questionnaire was analyzed using statistical package SPSS.

The five – point Likert scales are as follow:

Strongly Agree 5 points

Agree 4 points

Neutral 3 points

Disagree 2 points

Strongly Disagree 1 point

Researcher used the criteria to scale rating of class interval to interpret the Mean score.

1. = 1.00 – 1.50 means Very Low (Not true at all)
2. = 1.51 – 2.50 means Low (True to a minimal degree)
3. = 2.51 – 3.50 means Medium (True to a moderate degree)
4. = 3.51 – 4.50 means High (True to a high degree)
5. = 4.51 – 5.00 means Very High (Absolutely True)

RESEARCH RESULTS

This part presents the findings from the analysis of the 50 fourth-year students of Bachelor of Education (B.Ed.)

Education (English) and Bachelor of Arts (B.A.) English, University of Phayao. The findings are divided into four parts: firstly, data summary of the general information; secondly, online learning and teaching conditions during the COVID-19 pandemic, thirdly, problems of online learning and teaching during the COVID-19 pandemic, lastly, solutions to online learning and teaching problems of the fourth-year students at the University of Phayao. Each of these parts is described as follows.

4.1 General Information: Sample Size

Table 1 Gender

Gender	Frequency	Percentage
Female	36	72%
Male	14	28%
Total	50	100%

Table 1 classifies the sexuality of the respondents. The majority of the participants were female (72%) while male participants were (28%) of all respondents.

4.2 The condition of online learning during the lockdown period of the COVID-19 pandemic

Table 2: The satisfaction of students towards online learning during the lockdown period of the COVID 19 pandemic

Choice	Frequency	Percentage
Slightly satisfied	26	52%
Satisfied	23	46%
Very satisfied	1	2%
Extremely satisfied	-	-
Not satisfied	-	-
Total	50	100%

Table 2 presents the data of respondents' satisfaction on the condition of online learning during the lockdown period of the COVID-19 pandemic of University of Phayao. Overall, most participants indicated that they slightly felt satisfied with the situation (52%) and followed by 46% of participants who felt satisfied with such condition of the study. However, there were only 2% of the participants indicated that they were very satisfied with the online learning.

Table 3 The opinion towards online learning during the lockdown period of the COVID-19 pandemic of students at the University of Phayao

Choice	Frequency	Percentage
Moderately effectiveness	34	68%
Slightly effectiveness	16	32%
Very effectiveness	-	-
Not at all effectiveness	-	-
Total	50	100%

Table 3 shows the opinions of the respondents towards the effectiveness of online learning of the University of Phayao during the lockdown period of the COVID-19 pandemic. The result shows that most of the respondents' opinions were moderately effectiveness (68%). This means that online learning was efficient. Then, 32% of respondents indicated their opinions that online learning of the University of Phayao was slightly effective.

Table 4 The understanding of the material delivered during online learning

Choice	Frequency	Percentage
Slightly understanding	28	56%
Understanding	21	42%
No understanding	1	2%
Very understanding	-	-
Total	50	100%

Table 4 demonstrates the understanding of the material delivered during online learning of the University of Phayao during the lockdown period of the COVID-19 pandemic. Overall, it can be seen that most of the respondents slightly understood the material delivered during online learning (56%). Then, it was illustrated that 42% of the participants showed that they understood the distributed materials. However, 2% of participants indicated that they did not understand the materials.

Table 5 The encountered problems during online learning

Choice	Frequency	Percentage
Encountered a few problems	37	74%
Encountered many problems	13	26%
Not ever encountered a problem	-	-
Total	50	100%

Table 5 illustrates the levels of problems that the respondents encountered during online learning of the University of Phayao during the lockdown period of the COVID-19 pandemic. It can be seen most of the respondents encountered a few problems at (74%). That was followed by the answer of respondents that encountered many problems at 26%. However, the choice that respondents not ever encountered a

problem is 0% which means no respondent not ever encountered a problem.

Table 6 answers for “If you ever encountered problems in online learning, what problems did you encounter? (You may choose more than one answer)”

Choice	Frequency	Percentage
The problem of costs in online learning	40	80%
The problem of the internet signal.	34	68%
The problem of the environment in online learning.	30	60%
The problem of understanding in online learning.	26	52%
The problem of activities in online learning that not suitable.	26	52%
The problem of equipment for online learning.	22	44%
The problem of systems in online learning.	17	34%

Table 6 shows the data of what problems that the respondents encountered during online learning of the University of Phayao during the lockdown period of the COVID-19 pandemic. Overall, it can be seen that most of the respondents encountered is the problem of costs in online learning at (80%) which means online learning increases the spending. That was followed by the problem of the internet signal at 68% which shows the internet is necessary for online learning, the problem of the respondents' environment in online learning at 60%, the problem of understanding in online learning at 52% that means one of the main problems was understanding. At the same, the problem of activities in online learning that not suitable was 52%. In the part of the equipment in online learning, the problem that respondents encountered at 44%, and lastly the problem of systems in online learning at 34%.

4.3 Problems in online learning during the lockdown period of the COVID-19 pandemic

Table 7 Problems in online learning during the COVID-19 pandemic

Problems in online learning during the COVID-19 pandemic	MEAN	SD	Level	Rank
Problems of learners				
Listening skills	2.90	0.68	moderate	5
Speaking skills	3.80	0.57	high	3
Reading skills	2.40	0.60	low	7
Writing skills	2.48	0.70	low	6
Enthusiasm in online learning	4.28	0.57	high	2
Participation in online learning	4.34	0.71	high	1
Level of acquired knowledge	3.72	0.76	high	4
Problems of learners' environment				
Online learning place	3.28	0.73	moderate	3
Learners are able to access online learning	3.48	0.65	moderate	2
Online learning equipment	3.74	0.72	high	1
Problems of contents				
Contents are not interesting.	3.94	0.71	high	3
Contents are not suitable for online learning.	4.16	0.55	high	1
Contents are not able to apply in daily life.	4.08	0.72	high	2
Problems of online learning				
The suitable of online learning applications	2.98	0.55	moderate	3
Internet signal problem	3.70	0.76	high	2
No variousness of learning management	4.06	0.55	high	1
Problems of measurement and evaluation				
The suitable of online exams	3.12	0.59	moderate	2

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Measurements and evaluations are inappropriate and inaccurate	3.08	0.49	moderate	3
Learners concerned about problems that may appear during online exams	4.08	0.40	high	1
Total	3.56	0.63	high	

Table 7 above presents the data analysis on problems in online learning during the COVID-19 pandemic of respondents by analyzing into mean and standard deviation. The finding explains the problem of respondents into 5 sections: Problems of learners, Problems of learners' environment, Problems of contents, Problems of online learning, and Problems of measurement and evaluation. That in each section their present top 3 problems.

From Table 7 the result shows that problems of online learning during the COVID-19 pandemic of the fourth-year students at the University of Phayao. The overall result is at a high level (\bar{x} = 3.56). It can be seen that the problems concerning to learners, most of the respondents' opinions were the participation in online learning (\bar{x} = 4.34) and the enthusiasm in online learning (\bar{x} = 4.28) followed by the speaking skills (\bar{x} = 3.80).

The problem of learners' environment shows that at the moderate level, online learning equipment (\bar{x} = 3.74), learners are able to access online learning (\bar{x} = 3.48), and online learning place (\bar{x} = 3.28).

As for the problems of contents illustrate that at a high level, contents are not suitable for online learning (\bar{x} = 4.16), contents are not able to apply in daily life (\bar{x} = 4.08), and contents are not interesting (\bar{x} = 3.94).

The problems of online learning can be seen at a high level, no variousness of learning management (\bar{x} = 4.06), internet signal problem (\bar{x} = 3.70), and the suitable of online learning applications (\bar{x} = 2.98).

The problems of measurement and evaluation show that at a moderate level, learners concerned about problems that may appear during online exams (\bar{x} = 4.08), followed by the suitable of online exams (\bar{x} = 3.12), and measurements and evaluations are inappropriate and inaccurate (\bar{x} = 3.08).

4.4 Solutions to online learning problems during the lockdown period of the COVID-19 pandemic

Table 8 Solutions to online learning problems

Solutions to online learning problems	MEAN	SD	Level	Rank
Solutions to learners' problems				
Listening skills encourage	3.30	0.65	moderate	5
Speaking skills encourage	4.10	0.68	high	4
Reading skills encourage	2.76	0.69	moderate	6
Writing skills encourage	2.76	0.69	moderate	7
Improve the learning to more interesting	4.28	0.45	high	3
Improve activities for learners to be more participation	4.54	0.58	very high	1
Improve the learning for learners to reach the knowledge from a variety of resources	4.36	0.60	high	2
Solutions to learners' environmental problems				
Learners are able to learn by themselves at any time.	3.84	0.55	high	3
Add more learning accessible channel for learners	4.08	0.52	high	2
Learners are able to independently study with themselves and more flexibility in learning and teaching.	4.26	0.49	high	1
Solutions to online learning problems				
Use suitable applications for online learning	3.62	0.60	high	3
Learners are able to learn with themselves independently	4.18	0.48	high	2
Provide learning and teaching with a	4.28	0.50	high	1

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Solutions to measurement and evaluation problems				
Provide the online exam by using the suitable exams and examination channels.	3.84	0.55	high	3
Measurements and evaluations should be suitable and accurate.	4.02	0.62	high	2
Under any condition that occurs during the examination the proctor has to support the examinee	4.38	0.49	high	1
Total	3.91	0.57	high	

Table 8 above presents the data analysis on solutions to online learning problems of the respondents' needs by analyzing into mean and standard deviation. The finding explains the level of respondents' needs into 4 sections: Solutions to learners' problems, Solutions to learners' environmental problems, Solutions to online learning problems, and Solutions to measurement and evaluation problems. That in each section there were presents top 3 solutions.

From Table 8 the result shows that the solutions to online learning problems of fourth-year students at the University of Phayao. The overall result is at a high level of need (\bar{x} = 3.91). It can be seen that the solutions concerning to learners' problems, most of the respondents' needs were improve activities for learners to be more participation. (\bar{x} = 4.54), followed by improve the learning for learners to reach the knowledge from a variety of resources (\bar{x} = 4.36), and improve the learning to more interesting (\bar{x} = 4.28).

The solutions to learners' environmental problems at a high level, learners are able to independently study with themselves and more flexibility in learning and teaching (\bar{x} = 4.26), add more learning accessible channel for learners (\bar{x} = 4.08), and learners are able to learn by themselves at any time (\bar{x} = 3.84).

The solutions to online learning problems at a high level, provide learning and teaching with a variety of types (\bar{x} = 4.28), learners are able to learn with themselves independently (\bar{x} = 4.18), and use suitable applications for online learning (\bar{x} = 3.62).

The solutions to measurement and evaluation problems at a high level, under any condition that occurs during the examination the proctor has to support the examinee (\bar{x} =

4.38), measurements and evaluations should be suitable and accurate (\bar{x} = 4.02), and provide the online exam by using the suitable exams and examination channels (\bar{x} = 3.84).

V. DISCUSSIONS

This section discusses the findings of the current study. During the situation of the COVID-19 pandemic online learning is very helpful and can be seen that the learning mode can be continued with the online systems. All of the learning processes were rapidly changed, that the learners are profoundly aware of the changing of systems. In the same vein, this is similar to the study of Popovici and Mironov (2014) who mentioned that the changes brought students watchful about the impact of changing learning systems.

The rapid changes made the problems appear. This study reveals the problems raised in online learning whether the costs issues, internet signal, equipment in online learning, and including online learning systems. The main issues that can be seen from the analysis were the costs of online learning and the condition of learners, namely, the environment, equipment, and the burden of costs. Similarly, Mamattah (2016) indicated that the most concerns for the respondents during the online learning system were also the costs. In the part of online learning, it is undeniable that the internet became a necessary part of the study during the pandemic of the COVID-19. The internet caused problems for some groups of respondents in this study. In contrast Mislinawati & Nurmasiyah, (2018) indicated that students' familiarity with technologies tended to familiarity with e-learning and use e-learning fluently.

The change directly impacts the condition of learners and teachers. The contents are one of the main problems in online learning. In the part of the contents curriculum, and learning methods were also found in a high demand. The learning system became a new environment for both teachers and students. (Yao et al., 2020). Beside, the results in this study showed one of the major problems in online learning was the class participation of learners in classroom activities. There was a lack of suitable activities that got the learners attention and them interested in the provided activities. Such styles of teaching brought into the low efficiency and not variety Guo&Li,2020; Khaiuddin et al., 2019 brought the various method to use whether group discussion methods or peer assistance to get attention from the learners.

Furthermore, the results also showed the student's lack of enthusiasm in online learning caused by the learning that was not flexible and uninteresting. Thus, it corresponds to the needs of respondents' solutions that indicated the online learning must be adjusted for more suitable, flexible, and accessible to learners. In similar vein Macià & García (2018)

and Semenova (2019) stated that the program of learning from home will be successful, if changing the curriculum to more flexibility and harmonization.

VI. CONCLUSION

According to the findings, it was illustrated the main online learning problems are participation in online learning and enthusiasm in online learning. It can be seen that corresponds to the needs of respondents' solutions at the first-ranked, respondents desired to improve activities to be more participation. In third-ranked, respondents desired to improve the learning to more interesting. As the results showed the efficacy of learners depended on their activities participation, learning attractive and including a variety of resources to reach the knowledge. The problems still appeared in the learners' environment that can be seen the problem of equipment and learning channels were the major problems that the guidelines were added more learning accessible and adjust the curriculum to be more suitable, flexible, and independent. Therefore, that can solve the problems of contents whether not suitable, and not able apply in daily life. Also, with the learning management problems, the results showed the respondents desired to learn from a variety of types for more attractiveness. The respondents still desired to supported under any condition that can occur during the examination. Based on the outcomes of this research study, it is suggested that the University should adjust the curriculum to be more consistent and respond to learners' needs for more efficiency, and able to support the learning systems in unexpected situations.

VII. RECOMMENDATIONS

This study was conducted using quantitative methodology; consequently, it may not illustrate the details in-depth of the results. The questionnaire was designed to closed-ended for the purpose that simple and uncomplicated to respondents for gain detailed information according to online learning problems and solutions.

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The Value Addition of Banana Trees with New Products in Ban Hae Community, Ang Thong Province

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Abstract— Bananas are classified as important economic crops of Thailand. They can be grown in all regions of the country and throughout the year. However, previous research has not yet found the maximum potential of banana trees. Many studies mainly focus on the processing of banana fruits. This research, however, focuses on developing the potential of banana trees with the concept of creating value-added products that generate income for the community. The objectives of this research are to 1) create the prototype of paper produced from banana trees, 2) add the value of products made from banana trees, and 3) disseminate research results and new products from banana trees to the community. This mixed-method research employed a case study and survey research method. Data were collected by interviewing 10 community enterprise representative who were involved in processing bananas in Ban Hae, Ang Thong province and selected by purposive sampling to in-depth interview from 86 members. There were also three product design and development experts selected by purposive sampling. There were also 100 customers who were selected by accidental sampling. The research instruments included a questionnaire and an interview. Qualitative data were analyzed by means of content analysis and quantitative data were analyzed by means of descriptive statistics including frequency, percentage and standard deviation. The design and developments of the products were used as a basic concept for this research to add their value. This research suggests that communities can create value-added from useless banana trees transformed into packaging to replace purchases from external sources. As a result, reducing costs. It also provides a unique identity for the community products

Keywords— Value-Added, Creating, Banana Trees, New Product

I. INTRODUCTION

“Bananas” are indigenous to South and Southeast Asia (where Thailand is one of those regions) and are commonly cultivated in developing countries [1]. Bananas are easy to grow and their preferred condition is hot climate. Bananas can be grown everywhere in Thailand. Bananas have been associated with Thai people's way of life for a long time. Thailand has an area of approximately 481,639 rai of bananas, divided into 328,456 rai of cultivated bananas, 63,233 rai of lady finger bananas, 62,525 rai of Cavendish bananas, and about 27,425 rai of other banana varieties [2] Thai people know how to make use of the banana trees and different parts of the banana can be used for consumption, religious ceremonies, daily rituals, and art works. In addition, bananas are processed into food, snacks, beverages, and medicines, etc. [3][4][5] However, previous research has not found the maximum potential of the banana plant. Many studies have focused mainly on the cultivation of bananas for

export, the processing of banana fruit or banana leaves [6][7][8][9][10][11][12][13][14][15]. Ban Hae Subdistrict, Muang Ang Thong District, Ang Thong Province is one of Thailand's provinces with an area of 4,570 rai, which is 2,645 rai of agricultural area. Most of the occupation that had been done in the past was farming and agricultural occupation still exists which accounted for about 80% of the total land area. The condition of the agricultural area has changed from the former farming to a vegetable garden and a village where most bananas are grown for selling fruits and leaves, with bananas being processed as food and snacks. Ban Hae Subdistrict Administrative Organization has promoted and pushed such as organizing a contest, organizing a Shom Shop Shim project, Kluay Kluay exhibition, and the Pracharath market project. Activities in the event have brought various kinds of bananas to showcase more than 30 types of food processing products from both savory and sweet bananas from 2017 to the present [16][17]. There is also a group of farmers formed the Ban Hae Farmer Housewives Group which has 86 members. A community enterprise of baked banana sheet group was established as an OTOP product, a

prominent product category, which was established to process bananas in order to develop products and help farmers in case of oversupply. At present, there is a large production capacity for domestic sales [18]. However, even with processing to support the production, it is known among farmers that banana plants at the age of 10-15 months. When the bunch and the fruit is mature or fully ripe, then the plant must die [19], causing most of the banana stems that farmers cut, sell, or process the fruit to be cut off and become waste and a burden on the farmer group. Only 10% are used for raising animals (Information from researchers interviews). The above information provided the rationale for this study to focus on the potential development of banana plants. The idea is to create a value-added product that generates income for the community and is unique by creating new products from the ripe banana plants such as paper and various household or community enterprises to generate income and build a sustainable career for the community, enabling the community to continue to be self-reliant. It also creates a brand of products in the community and creates an image that will make the community famous. The community can apply the knowledge gained to develop it with other products that will occur in the future in order to be in line with the National Strategy [20] and the 5-Year Development Strategy and to achieve that vision that "The country is stable, sustainable, and a developed country with development according to the philosophy of sufficiency economy." This has led to the development of Thai people to be happy and respond to the achievement of national interests in order to improve the quality of life, generate high income, become a developed country, and create happiness for Thai people for a stable society. The country can compete in the economy through the development of entrepreneurship and community economy, skill development, entrepreneurship further [21].

II. RESEARCH OBJECTIVES

The objectives of this research article were 1) to create a prototype for making paper from banana trees, 2) to create added value for banana trees to new products, and 3) to disseminate research results and transfer knowledge to the community of banana tree product producers.

III. LITERATURE REVIEW

Sufficiency Economy Concept for Farmers

Sufficiency Economy is a philosophy initiated by His Majesty King Bhumibol Adulyadej, pointing out the way of existence and conduct of people at all levels, from the family level, the community level, and the state level. Development and administration of the country to be carried out in the middle

way, especially the economic development to keep up with the globalization world according to the royal initiative based on the principle of "New Theory" in 3 steps. The first step is self-sufficiency, self-sustaining on the basis of frugality, and eliminating spending. The second step is to unite forces in the form of groups to do production, marketing, management, including welfare, education, and social development, etc. The third step is to build a network of professional groups and diversify economic activities by collaborating with the business, NGOs, and government sectors in finance, marketing, production, management, and information.[22][23][24] The significance of the Sufficiency Economy concept consists of three main components: Firstly, it is an economic system that adheres to the principle of "self-reliance" by focusing on the production of crops to meet the needs of household consumption first. When there is enough left over from consumption, production for trade is the second priority. Surplus produce that goes to the market will be the profit of farmers. The second is that the sufficiency economy focuses on the integration of villagers. Villagers groups or village organizations act as operators of various economic activities and cover integrated agriculture, handicrafts, food processing, trading business, and community tourism, etc. As these villagers' organizations are strengthened and have a broader network, all farmers in the community will be cared for to earn more, and to get all problems solved [25]. In this way, the overall economy of the country is able to grow stably. This means that the economy can expand with better income distribution conditions. Third, a sufficiency economy is based on the compassion, generosity, and unity of community members in working together to achieve their careers. The benefits therefore not only mean income in one dimension, but also include benefits in other dimensions such as building stability for family institutions, community institutions, the ability to conserve natural resources and the environment, and developing learning processes of the community based on local wisdom, including preserving the good traditions of Thailand to last forever [26][27][28].

Information about bananas

There are 2 types of bananas that farmers in Ban Hae sub-district mainly plant. The first type is cultivated banana, a banana that is widely cultivated in Thailand (Scientific name: *Musa sapientum* Linn). It is a type of banana developed from a cross between a wild banana and a *musa balbisiana*. Because cultivated banana fibers are easy to peel, the fibers are tough, soft, and not too hard. The second type is Cavendish bananas (scientific name: *Musa sapientum* Linn.Fam). The stem is a pseudostem, about 2.5-3.5 m tall. Approximately 20 cm in diameter along the stem. There is a slight black dot on the

outside and light green on the inside. The stripes are pink. This banana is an industrial crop [29].

Banana tree is a plant that has 6 major components as follows:

- 1) The underground stem is called a tuber or rhizome. At the head there is a bud, which grows into a tree and produces several suckers, called tillering. The suckers or the plant seen above the soil is actually not the stem. It is called a pseudostem. This part is caused by the compaction of the leaf sheaths arising from the growth point of the underground stem. The leaf sheaths hold the petiole and leaf. At this point, flowers grow after the ends in leaf growth of the last leaf before flowering that is called the flag leaf.
- 2) Roots are a root system that extends more broadly than deep vertically.
- 3) The seeds are round and rough. The seed coat is black, thick and tough. The flesh in the seeds is white. They propagate by separating suckers or rhizomes.
- 4) Flowers, flowers of bananas separate into inflorescence. In the inflorescence, there is a group of inflorescences in groups. Between the clusters of individual inflorescences there are decorative petals, known as bracts. It has a magenta barrier. The female flower cluster is at the base and the male flower cluster is at the end of what is called male bud. Between the female flowers and the male flowers, there are bisexual flowers. However, some varieties are not in the inflorescences. Each bouquet has flowers arranged in two rows. If they are female flowers, these flowers will continue to grow as a result.
- 5) Fruit, Banana fruit is born from the female flower located at the base. A group of female flowers that develop into a fruit is called a comb. Inflorescences grow into one bunch. Therefore, 1 bunch of bananas may have 2-3 combs or more than 10 combs depending on the banana variety and care. The fruit of the banana grows without fertilization, so most bananas are seedless.
- 6) Leaves are large leaf plates with a width of about 70-90 centimeters and a length of 1.7-2.5 meters. They have rounded leaf tips and oblong leaf shapes. The base of the leaves is rounded and the leaf plates are green [30]. There is a saying that bananas are versatile trees and can be used anywhere from root to shoot. In the past, when rice was scarce, humans would boil, steam, or burn the roots of bananas as a substitute for rice other than eating fruit [31]. However, nowadays, most of the uses of bananas, fruits, and banana leaves are used for eating fresh, bananas are used for cooking, and the leaves are used as packaging materials. In addition, bananas are processed into various products such as savory, sweet, snack bars, plates, decorative products, various containers, including making rope from banana trees, etc. [32][33][34][35][36][37]. These are based on farmer interview data. A community enterprise representative said most farmers today are not making the most of the banana stem.

Value Added Creation Concept

Value Added Creation Concept is the creation of added value to the original product and is a marketing tool for product development, distribution, advertising, and market promotion. These things result in higher prices and are considered as an effort to develop products that are valuable in the eyes of consumers in marketing. Creating added value is the development of products to achieve maximum consumer satisfaction and exceed customer expectations. The added value can be caused by adding something beyond what the consumer expects. Therefore, today's business can be seen that it is not just selling the main product or service alone, but must have a part of adding value that will make consumers feel more useful [38]. Creating added value can be created in a number of ways, such as creating added value from product design and creating added value from manufacturing processes. Sometimes it has to be done at the same time in order to achieve the final success is to get products and services that have "added value" for the target consumer group [39][40]. Therefore, creating added value from banana trees into new products is essential. Each manufacturer therefore seeks opportunities to develop and enhance the product features offered to customers. The tool to help farmers and community enterprises to survive and thrive is to satisfy their customers over their competitors, that is to attract them by creating added value that makes customers feel more than satisfied [41]. In this research, the meaning of creating value added from banana trees with new products refers to how to create new products from banana trees or how to generate additional income for farmers and community enterprises in their occupation. Creating added value is the key to sustainability.

New Product Concept

"New product" refers to a product that has been developed or has improved the existing product of the business to have better features. It may be the process of conceptual transformation towards products with sensory and intangible properties to meet the needs of consumers. Developing new products will reduce costs, generate income for entrepreneurs, and increase the chances of business success [42][43][44][45]. From the literature review on the new product development process, there are many different processes [46][47][48]. It can be summarized in 3 phases:

- 1) **Pre-Development phase** is the collection of concepts in the development of new products with a clear purpose of what the product needs or in what direction it is called the idea gathering.
- 2) **Development phase** is the concept of developing a product and bringing the product to survey the satisfaction of

consumers with that product in order to confirm that the new product to be brought to the market is desired by the consumers for consumption.

3) Post-Development is the phase of product development at full capacity and implementing a strategy that includes the production and distribution phase and the Follow-up and evaluation phase.

Based on the concepts and theories and the literature review, the research team created the research conceptual framework as follows:



Figure 1 : Research conceptual framework

IV. RESEARCH METHODS

The researchers have designed the research tools and methods of research systematically to ensure the accuracy and pertinence of the study results. Topics can be categorized into the following steps:

A. Sample selection: In the case study approach, subjects were selected based on purposeful sampling according to [49] concept. in the type of purposive sampling that have different characteristics and are unique. In this study, samples were selected from community enterprises, Ban Hae Sub-district, Muang District, Ang Thong Province as a case study for adding value with new products from banana trees. New products from banana trees are community enterprises that use products from banana trees. There are members who have planted banana trees to process their products into outstanding, successful enterprises, and have been certified as one of the five-star OTOP in Thailand as mentioned above. There are also 3 qualified product design and development experts chosen by pure sampling and 100 customers chosen by accidental sampling.

B. The research tool used interview forms and questionnaires. Qualitative data were analyzed by means of analyzing content data and quantitative data using descriptive statistics, frequency, percentage, and standard deviation. Product design and development were used as the basis for this research to increase their value.

C. Data Collection Method: In-depth interviews were used to collect data with the group of chairman, staff, community

enterprise members, and community enterprise network groups. The study also collects information from additional documents such as business plan documents and income-expense accounts, etc. The researchers made an appointment with the informant in advance every time. The interview was conducted in October-November 2020. Preparation of the researchers is a research study from 2 researchers who have prepared before going to the area by following steps. 1) The study of background data of the sample is a study of the general context of banana-growing agriculture in Ban Hae Community and Ban Hae Community Enterprise by searching the website or the internet that disseminates information from the Ban Hae Subdistrict Administrative Organization, Muang Ang Thong District, Ang Thong Province, including telephone inquiries, preliminary information and permission to schedule an interview. 2) Review of relevant literature is a study of additional information before going to the actual site by reviewing documents related to banana plants, product value-added approaches, and quality research methods based on case studies, etc. to obtain information used to create an interview form before going to the actual site. 3) Preparation of the protocol is the preparation of a manual to be used during the actual interview with the interviewee in order to have a systematic and standardized procedure for interviewing as shown in Table 1 as follows.

Table 1 Interview Guide

Title	Descriptions
STEP 1 Introduction of the research	An introduction of the research team to the interviewees to get acquainted with them and to inform the research objectives and to express their gratitude for the time being taken by the interviewees to participate in this research.
Step 2 Interview Questions	Part 1 is the general information of the interviewees for 3 items. The second part is about 5 items of community context, original product, and new product development needs.
Step 3 Summary of Interview Results	Summarize the key points for the interviewees for acknowledgment and summarize the overall information from the interview together and thank the interviewees once again.

Source: (P. Pongnarin, S. Utamart and S. Pimpan, 2020).

D. Interview technique: involves recording written information in a journal during the interview along with a still photograph. The researchers have always asked for permission from the informant first. During the interview, there will be breaks and interrogations outside of the questions prepared by the researchers in order to prevent the informant from occurring too stressed. For the interview questions, the researchers prepared the questions in the semi-structured interview format as a guideline to develop the questions to get relevant and comprehensive information according to the research objectives [38].

E. Data analysis: is based on the interpretation and analysis of data collected by [50] which can be divided into 3 steps: open

coding, axial coding, and selective coding. The data analysis in this research study used a statistical packaged program, which is a computer program that is suitable for both qualitative and quantitative research, which can be used to assist in the interpretation of the text data obtained widespread popularity [51]. However, in the interpretation and analysis of the data, the two researchers still play the most important role. In interpreting and analyzing the data in this study, frequency, percentage, and standard deviation were used for data analysis.

F. Reliability check: Credibility or reliability in this quality research study, the researchers applied a triangulation technique according to the concept of [52] which can be divided into 3 techniques as follows. 1) Researchers Triangulation is a technique to reduce interpretation errors by using the perspectives of two researchers together to interpret and analyze the data back and forth many times. Even the data studied were not different, so the analysis was stopped for further steps. 2) Datasets Triangulation is a technique of collecting data from various sources in order to obtain more comprehensive information by means of in-depth interviews. Three groups of informants consisted of Ban Hae Farmer Housewives Group, Chairman, and members of the Ban Hae Banana Sheet Muen Community Enterprise Group, Ban Hae Subdistrict, Ang Thong Province. The number of interviews was 3 times, 1 hour each. Data is collected from other documents, including business plan reports and income-expense accounts, etc., for interpretation and numerical analysis related to value-added banana products. 3) Methods Triangulation is a technique for analyzing data that shows the value-added product from banana plants in two ways. The first method is a descriptive lecture section describing research findings related to the method of prototyping of paper produced from banana plants and product design and development by experts. The second method is a numerical analysis of the description of research findings relating to consumer demand for community products from 100 customers in order to quantitatively analyze content data in the form of numerical data. The quantitative questionnaires were examined for content validity. Validity by bringing the interview form and questionnaire created to 3 experts to find the IOC (Index of Item – Objective Congruence). The acceptable IOC values for each question are from 0.50 onwards. It was shown that all questionnaires and interview forms used in this research were of acceptable quality [53]. It was found that the interview form consisted of 5 items. IOC values were between 0.87–1.00. The opinion questionnaire of experts, housewives, farmer groups, enterprise representatives and consumers contained 20 questions. IOC values were between 0.80–1.00.

The consumer satisfaction questionnaire consisted of 5 items. IOC values were between 0.85–1.00 which was greater than 0.50. These showed that the tool can be used for quality research and can be used to collect data effectively.

V. RESEARCH RESULTS

The result in the first aspect was that the Ban Hae community grows bananas commercially. The rest was processed into banana rolls. When the business became more profitable, the community was established as a community enterprise for processing baked banana sheet rolls in Ban Hae Subdistrict, Mueang Ang Thong District, Ang Thong Province and sold out in large numbers. The problem was that after harvesting, the community often cut down almost 100% of the banana tree and did not use it, turning it into organic waste.



Figure 2 Banana cultivation, processing and grouping of people in Ban Hae Subdistrict, Ang Thong Province

The researchers therefore studied the production of paper from banana trees by using the Mechanical Process method of making banana fiber sheets. Banana fibers were mixed with hemp, bleached, beaten with a Hollander pulp spreader and dried in the sun. After that, the banana fiber sheets were tested for efficiency, which can be used as well as proposed methods for producing paper from banana trees as follows:

Step 1 Take the banana plant after harvesting and cut it into 1 foot pieces, cut 4 halves, and soak in water for 1 night. (If the banana tree that is cut down is freshly cut, soak it for 5-7 nights) as shown in Figure 3.



Figure 3 The process of fermenting the banana plant to prepare the paper
Step 2 Wash the fermented banana plant with water and bring it to a boil in a pot mixed with caustic soda. The proportion is 60 kg of banana plants: 2 kg of caustic soda and mixed with dried flax (cut 1 foot, fermented for 1 week, amount 5 kg). Mix together and boil for 3 hours, then scoop out and wash with clean water. Rest for about 10 minutes, as shown in Figure 4.



Figure 4 The process of boiling the banana plant and its ingredients

Step 3 After the boiling is complete, remove the unspoiled pulp and process it in a Hollander blender. 30 kilograms of bananas were blended together until it was finely milled into cotton wool for 15 minutes per mill and then poured out into the sump as shown in Figure 5.



Figure 5 The process of spinning banana plants in a Hollander blender.

Step 4 Cut the paper from the banana tree by bringing a tank to put the banana tree that has been finely blended and mixed in the paper pit, mixed with clean water by putting about 50 cm. (size of the pond 130 cm wide, 85 cm high, and 50 cm of inside base height). Bring the paddle to stir in the pond to break the paper into cotton wool and bring the teak frame (width 56 cm, length 80 cm) created to scoop the paper according to the desired thickness. (There were 3 sizes of paper thickness, namely No.00 is 100 grams per sheet, followed by 01 is 85 grams, and the last number 03 is 65 grams thick) as shown in Figure 6.



Figure 6 The process of cutting paper from a banana tree to form a frame in a cement pond.

Step 5 Take the paper that has been molded from the frame sheet and let it dry for about 10 minutes. After that, take a container with a circular mouth to spread the paper so that the paper is evenly smooth and dry in the sun for 2-3 hours depending on the weather. After that, the paper is collected and put in bags for preparation to be sold or used to create the next product, as shown in Figure 7.



Figure 7 Procedure for adjusting paper surface uniformity and drying in the sun

The resulting product is paper from the banana tree as shown in Figure 8



Figure 8 Paper produced from the banana tree

The result of the second aspect, the design and development of banana products were based on participation from the selection of 2D drafts by key informants. After that, the researchers prepared a 3D draft to be considered for the prototype product and evaluated the 3D draft of the product by a group of 3 experts, 10 manufacturers, and 100 consumers, totaling 110 people. The results of the study were as follows: The participants were 65 female (59.09%) and 45 (40.91%) male. Participants were aged 45-54 of 48 people (43.64%), followed by 35-44 of 24 people (21.82%), 55 years and over of 14 people (12.72%), and aged 25-44 and under 25 years were the same of 12 people (10.91%). Participants were 30 company employees (27.27%), followed by 25 civil servants/state enterprise employees (22.73%), 17 private businesses (15.45%), 15 farmers (13.64%), 14 students (12.73%), and 9 housewives (8.18%), respectively. The results of the product draft evaluation were as follows:

Table 2 Results of evaluation results of product design and development from banana plants

Products	Number of people	
	\bar{x}	Percentage
Model 1	16	14.16
Model 2	45	39.82
Model 3	52	46.02
Total	113	100

The results of the evaluation of the 3D drawings of the women's handbags products revealed that the product models from the 3D drafts of the 3 packaging types chosen by the sample the first included the third model with 52 people representing 46.02%, followed by the second model with 45 people accounting for 39.82%, and followed by the first model with 16 people or 14.16%.

Table 3 Mean and standard deviation of the sample satisfied with the community product.

Question	Paper products made from banana trees					
	Model 1		Model 2		Model 3	
	\bar{X}	S.D.	\bar{X}	S.D.	\bar{X}	S.D.
Product usability	3.78	0.41	4.24	0.55	4.63	0.40
1. The product is comfortable to use	3.80	0.42	4.40	0.55	4.50	0.49
2. The design is relevant to the main use	3.78	0.42	4.20	0.44	4.61	0.49
3. There is a selection of materials that are suitable for use	3.83	0.36	4.06	0.51	4.78	0.42
4. The product is related to the size of the user	3.71	0.45	4.20	0.45	4.60	0.49
5. The product is practical, comfortable, and consistent with the product	3.76	0.41	4.40	0.55	4.56	0.50
Beauty	3.78	0.44	3.85	0.36	4.28	0.52
1. Products are creative in design, shape, and pattern	3.62	0.46	3.83	0.38	4.20	0.55
2. The product has the material and the features that are accurate, and complete	3.71	0.47	3.87	0.34	4.20	0.45
3. The product has beautiful colors and attractive decorative patterns	3.85	0.34	3.88	0.33	4.40	0.55
4. The product has a proper model, perfect shape, and complete composition	3.80	0.47	3.80	0.40	4.33	0.51
In terms of durability in use	3.81	0.39	3.81	0.38	3.88	0.32
1. The product is strong and suitable for real use	3.60	0.43	3.84	0.37	3.92	0.27
2. The product is durable, and can be used in a normal environment	3.46	0.50	3.71	0.45	3.84	0.37
3. Product uses convenient and basic form	3.50	0.54	3.88	0.32	3.89	0.32
Material	4.44	0.42	4.45	0.48	4.57	0.56
1. The materials used in the production are of suitable quality and are natural, renewable, and safe	4.34	0.47	4.43	0.45	4.41	0.55
2. The structure is suitable for production	4.47	0.46	4.36	0.43	4.60	0.35
3. Material production process is appropriate to create a product	4.57	0.42	4.20	0.37	4.60	0.55
4. The material used is safe for the body and does not harm the environment	4.60	0.45	4.57	0.42	4.53	0.35
5. The production process is convenient and has suitable material	4.21	0.37	4.68	0.33	4.73	0.60
Average of all aspects in each product	3.95	0.42	4.09	0.42	4.34	0.47

Table 3 found that consumers were satisfied with the banana tree paper products of the third model at the 4.34 opinion level, followed by the second model at the 4.09 opinion level, and the first model of product has a 3.95 rating. All three consumer products were satisfied at a high level. For the third product category, consumers were satisfied with the highest level of functionality (4.63), followed by material (4.57), aesthetics (4.28), and durability (3.88), respectively. In terms of the second product model, consumers were most satisfied with material (4.45), followed by product usability (4.24), aesthetics (3.85), and durability (3.81). Products with the first model were most satisfied with materials (4.44), durability, functionality (3.81), product usability (3.78), and aesthetics (3.75), respectively.

All three consumer products have a high level of opinion in all aspects.



Figure 9: Three prototypes of paper products made from banana trees

The result of the third aspect of the prototype product created in 3 models is shown in Figure 9 as follows, the first model. In this regard, the prototype product was taken to survey the consumer's demand to see the opinions of the sample group in Ban Hae community from farmer housewives, group of

housewives of community enterprises to process banana rolls, and consumers as shown in Table 4.

Table 4 Mean, standard deviation, and opinion level of the consumer sample with community product demand.

Consumer demand for community products	\bar{X}	S.D.	Opinion
1. Products have beautiful patterns and patterns in line with consumer demand	4.80	0.49	Highest
2. Products have a wide range of applications	4.62	0.50	Highest
3. Products design with novelty from general products	4.79	0.42	Highest
4. There is a selection of materials that are suitable for use	4.61	0.52	Highest
5. Products show the uniqueness of the product that comes from the banana plant	4.57	0.51	Highest

The survey results in Table 4 showed that the samples and consumers had the highest level of demand for products from the community.

VI. DISCUSSIONS

The results discussion according to research objectives are as follows:

A. Create a prototype of paper made from banana trees.

The research indicated that banana trees can be made into paper for commercialization benefits that was consistent with research by [54]. Banana by-products have been studied in which bananas were an important crop widely grown in tropical countries around the world. The stems were a by-product of bananas that can be processed for commercial use. [55]. This was consistent with other researchers who have discovered that the production of paper from banana plant material can be commercially produced and developed [56][57][58][59][60].

B. Create value with new products from banana trees.

After the successful trial of paper production from banana trees, paper can be added to add value by producing [61] 3 models of new products. However, in all 3 models of products, consumers were satisfied at a high level in terms of product utility, material, aesthetics, and durability. In addition, new products that have been created were still in demand by consumers at the highest level. This was consistent with the research of [62] who studied the feasibility of product development, design, and development of products according to community product standards. Product development was divided into five forms, and all forms of consumer demand were at the highest level. This was also consistent with the research of [63] who researched the development of handicraft products from banana rope. It was found that consumers were satisfied with the texture, aesthetics, durability, and usability at a high level.

C. Dissemination of research results of new products from banana trees to the community.

The researchers have brought the prototype product to transfer knowledge of paper production and created added value to the community. The participants were the most satisfied. This was consistent with the research of [64]

VII. RECOMMENDATIONS

A. Recommendations for Practices

1. Strengthening the management of agricultural produce in the community is a learning process for people in the community to drive more efficient livelihoods, business management, and career creation. Each of these communities has a different dynamic. If learning and sharing with each other will result in proper adaptation and development.
2. Creating added value for the banana tree, which is the most effective agricultural product in the community, should receive cooperation from internal and external communities and support from various organizations. In particular, the government sector has a strong need to strengthen in the early stages of adding value to the banana trees in the community.
3. Creating a new product is very important to the creation. The added value of agricultural products, especially bananas, which are local plants, will bring commercial benefits to the community.

B. Recommendations for Further Research

1. The samples tested in this study were only in Ban Hae Community, Muang District, Ang Thong Province. The further research should be done with other communities and compared to developing methods and ways to add value to banana plants in order to create a new body of knowledge for further research.
2. This research was carried out only in the field of adding value to banana trees. Therefore, research on various types of local agricultural products should be carried out as a guideline to add value to local agricultural products by encouraging people in the community to participate in the process of participating in the creation of new products in order to generate income and to continue sustainable development.
3. This research result was developed mainly by qualitative research. The results revealed an interesting issue from the process of spinning the banana pulp in the septic tank. If it is done commercially, there will be a lot of effluent discharge which will have a negative effect. Therefore, further research should be done by analyzing and experimenting with effluents for further development of new products such as compost.

VIII. CONCLUSION

Bananas are a low-cost food source in developing countries. The majority of the population uses bananas for food, but the composition of bananas is versatile and beneficial. The result was that the Ban Hae community was able to produce paper from banana trees. The creation of this product was not new, but its commercial benefit to the community has been achieved through the conduct of research in this project for the utilization of agricultural by-products and waste for commercial and income benefits. This was because the product created was essential to reducing waste and the loss of valuables unused, as well as reducing the reliance on natural wood which was expensive due to limited availability. The result of the community was that the community can generate income from the production of 3 sizes of paper: 100 grams with a wholesale price of 14 baht per sheet, 85 grams of banana paper with a wholesale price of 9 baht per sheet, and a size of 65 grams with a wholesale price of 6 baht per sheet. For retail prices, all sizes were sold for the same price, which was 35 baht. In addition, the community can create added value by developing new products from paper made from banana trees by designing and developing prototype products that are made into 3 types of packaging for household use and for use as the packaging of baked banana sheet community enterprises of Muan, Ban Hae Subdistrict, Mueang District, Ang Thong Province. This results in community enterprises reducing costs and generating increased revenue. This research will help other communities in Thailand and banana growing countries to use the research as a model for creating and developing products to distribute income to the community and further develop the country.

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A Comparative Study of Various Biographical Buddha Literatures in Thailand

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Abstract— The purposes of this research were 1) to examine and 2) to analyze and compare the historical background and cause of writing, literary style, structure and content, narrative method, literary value and influence on Buddhist education concerning biographical Buddha literatures in Thailand. This research is conducted through the qualitative research method that focused on the documentary analysis. It is based on biographical Buddha literatures into three versions; (1) Pathamasambothigatha (since the Buddha's Enlightenment), (2) Buddha's Biography from vol.1-3 and (3) "History of The Buddha From His Mouth" The results revealed that Pathamasambothigatha maintained to be textbook of Buddha's biography with prose and consisting of 29 chapters. Next, the biography of Buddha volumes 1 to 3 possesses reasons for writing as historical and contemporary texts of Buddhism by consisting of prose into 3 books. The last one is "History of the Lord Buddha" retains the cause of the writing as a handbook of Dhamma practicing was written in prose and there are seven chapters. Conclusion, Pathamasambothigatha is devotional, the biography of Buddha volumes 1 to 3 is rational and "History of the Lord Buddha" is pragmatic.

Keywords— Buddha's Biography, Buddha, Literature

I. INTRODUCTION

The biographical Buddha literatures are the one of Buddhist literary works that present the story of the Buddha since his birth, enlightenment and death. These stories base on the primary data sources like Tipitaka (Pāli Canon) which are Buddhacariyā (the Buddha's conduct), Buddhavamsa (History of Buddhas), etc. The meaning of the Buddha biography is the literature that identify to only history of the Buddha (Shakyamuni).[1] The various biographical Buddha literatures composing versions are the worship to the Lord Buddha because he is the Buddhist prophet who gave the Dhamma and loving kindness to survival. Anyway, in Thailand also have the Buddhist scholars who composed the biographical Buddha literatures since Sukhothai to Rattanakosin period that have various biographical Buddha literatures versions.[2] In this research presents various biographical Buddha literatures versions by Rattanakosin period which are well known. There are (1) Pathamasambothigatha (2) Buddha's Biography from vol.1-3 and (3) "History of The Buddha From His Mouth"

RESEARCH OBJECTIVES

1. to examine the historical background, cause of writing, literary style, structure and content, narrative method, literary value and influence on Buddhist education concerning biographical Buddha literatures in Thailand.

2. to analyze and compare the historical background, cause of writing, literary style, structure and content, narrative method, literary value and influence on Buddhist education concerning biographical Buddha literatures in Thailand.

II. LITERATURE REVIEW

1. Literature comparison and literature criticism

The literature criticisms present the ideas of critic and try to persuade readers to comply with their criticism that can be the successful criticism. (Charearnchittakam, 2008)[3] According to Theppayasuwan (1995) he revealed that criticism express the new and wide world to the readers as it relates to other disciplines. Some critics are interested in co-experience, history, society, imagination, economic and social class that they use them to be the premises for criticism. Although, they are interested in any concept, they must accept that the literature present international feature of human race as it is the individual and one part of society. (Boonsanid, 1995)[4] Then, Chidchamnong (2013)[5] she identified the principle of literature criticism that consider the composition and technique in literature, interpretation, linkage of informed meaning, art value evaluation both of aesthetics and ethics including, model analysis and content of literature by focusing on meaning and value for communicating to people and public. Therefore, the critic must know about model and

content for criticism as it works with language that has the complexity and be culture. Thus, the literature criticism can be happened when the readers want to know something and find some values or answers. When they read and do not follow and perceive, that do not have any criticism. The good criticism is from practicing, observing and careful considering. The critic must be always question what the author want to present, how to present the story, to present about whom and that characters are interesting or not. When the readers finish their reading, they think and criticize in their interested issues by divided them; how to present the concept idea of story and which methods. (Suphanwanich, 2004)[6] The prose is one of models and the most famous model for composing. The criteria for considering prose have more details due to many kinds of prose. There are academic, teaching, entertainment and odds and ends. The criteria for considering prose is general, which are (1)The model must match the content and time also concerning that it is new model or old one. (2) The story is modern and can entertain to people by matching the purpose of composer. (3) The story line is proper that can be complied or conflicted. (4)The technique for composing that can persuade readers are interested to follow. (5) The term selection is proper to characters and story also can create new terms for composing that is suitable to the content. (6) The structure and model of sentences can stimulate the emotion of readers and be reasonable. (7) The attitude of composer (8) Creditability and having premises to support (9) Philosophy or ideas appear in composing (10) The ideology of composer appear in composing, what it is and how to present. (11) The scene creation is the expressing the imagination, experiences or how to create it. (12) The characters are proper to story and method to presentation. (13) The action is important as lively movement. (Kesathed, 1982)[7]

2. Biographical Buddha literatures

The biographical Buddha literature is one of Ratanakosin's literatures. In Thailand, also have many biographical Buddha literatures which are in books and researches. Most of them are the overview of biographical Buddha literature and specific cases. But it does not have much more in any comparison for each version. The literatures relate to Buddha biography such as Nithi Aewsriwong's writing, that is "Pak-kai-lae-bai-reu" (The study of history of literature in Ratanakosin period) revealed that the Buddha biography in Thailand was history of Dhamma which was become to biography since Pathamasambothigatha to Buddha biography and study book of Dhamma discipline of ministry of education. After that they became their center of content from focusing on Dhamma essence to be Buddha like a human. This changing complied with the developing of painting art of

Ratanakosin period that is the image of Buddha painting art in Ayutthaya and early Ratanakosin were real Buddha image and Dhamma from the book of Triphumi (The three worlds of King Ruang). When King of Thonburi drew Siddhārtha Gautama met 4 stages of life that his characteristic liked human in other Thai literatures. (Aewsriwong, 2000)[8] Next, biographic Buddha literatures research that did research only one book ran by Sayam Rachawat.[9] His research was "The Analytical Study Interpretation of biographic Buddha literature by Vajirañāṇavarorasa". It revealed that analyze the details of this book by paradigm and multi transliteration. The biographic Buddha literatures in Thailand that have many versions, but the version of history of Buddha analyzing has a few book likes Nithiphat Chaleechancomposed "Na-wa-thad-hang-Buddha-pra-wat" (The new vision of Buddha biograph.[10] He intended to run Buddha biography by chronicle. When it was compared in Tipitaka or Pālā Canon (Vinaya and Suttanta), it had only places. The analytical biographic Buddha literature by Buddhadasa is Buddha biography in the analytical version. It was presented into 2 episodes; the first episode is the background and context of ancient India before Buddha time (landscape, people, education, culture, philosophy of other cults) and the second episode is the story of Shakyas kingdom and Shakyas clan. This book is one of Buddhist literary works of Buddhadasa that is not his preaching. (Buddhadasa Bhikkhu, 2003)[11]

III. RESEARCH METHODS

This research is conducted through the qualitative research method that focused on the documentary analysis which is to examine Pathamasambothigatha, Buddha's Biography from vol.1-3 and "History of The Buddha From His Mouth" by analyzing the historical background, cause of writing, literary style, structure and content, narrative method, literary value and influence on Buddhist education concerning biographical Buddha literatures. Next, to analyze, compare them by theoretical method, conclude and suggest the result for the Buddhist education.

IV. RESEARCH RESULTS

1. Pathamasambothigatha

"Pathama means the first, "sambothi" means Buddha's enlightenment and "gatha" means description and speech so that "Pathamasambothigatha" is the first and basic contents or descriptions of Buddha's enlightenment.[12] It is a Pālā biography of the Buddha. The oldest known version of this scripture can be dated back as far as the Lanna period. Several more versions both in Pālā and Thai of

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Pathamasambodhigatha were written later in Ayutthaya and Rattanakosin periods as a sermon preached on a religious day because of its popularity.[13] That was composed by Paramanuchitchinrot that are in Pālā and Thai. The cause of writing is King [Rama III](#) asked him to compose the perfect biographical Buddha literature version and he composed it on 2388 B.E.. He composed in Thai prose that got some influence from Pālā and also it was the second edition which he cut and made it more completely.

The structure of content was divided into 29 chapters .

No.	Pālā	English
1.	Vivāhamangalaparivarta	The background and story of Shakya clan
2.	Dusitaparivarta	The birth in Dusita blissful world
3.	Kapbhānikakhamana -parivarta	The Siddhārtha Gautama's birth
4.	Lakhaḍḍapariggāhaka -parivarta	The Buddha characteristic and prediction
5.	Rajābhisakaparivarta	Siddhārtha Gautama's coronation
6.	Mahābhīnikakhamana -parivarta	The ascetic life
7.	Dukkarakiriya-parivarta	The practice of austerities
8.	Buddhapājaparivarta	The Buddha's enlightenment
9.	Māravijaiyaparivarta	The war with the great Māra
10.	Abhisambodhiparivarta	The meditation at Bodhibanlang
11.	Bodhisubba-parivarta	Bliss of Emancipation
12.	Bhamajhesana -parivarta	Bhamma asked the Buddha to preached for survival
13.	Dhammacakkaparivarta	The first sermon
14.	Yasapabbajjaparivarta	The Yasa's ordaining
15.	Aruvelagamanaparivarta	The Aruvelasena -nikom visiting
16.	Aggarasāvaka-pabbajjā -parivarta	The two Chief Disciples
17.	Kapilavastuparivarta	Kapilavastu visiting for father

		and relatives
18.	Bimbābilāpaparivarta	Yasodhara's sadness
19.	Shakyapabbajjaparivarta	Shakya clan ordaining
20.	Metteyyapayākaraḍḍa -parivarta	Prediction of Metteyya's origination
21.	Buddhapitunibbāna -parivarta	The Nibbāna of Buddha's father
22.	Yamakapāṇihāriya -parivarta	The Buddha's showing the Buddha supernatural power
23.	Desanāparivarta	The Buddha visiting his mother at Tāvātīyāsā
24.	Devorohanaparivarta	The Buddha back from the blissful world
25.	Aggarasāvakanibbāna -parivarta	The Chief Disciples death
26.	Mahānibbānaparivarta	The Buddha's death story
27.	Dhātuvi bhajjanaparivarta	The Buddha's relics distribution
28.	Mārabandhaparivarta	The great Māra was suffered by Upaguta
29.	Dhātuantaradhāna -parivarta	The Buddha's relics disappearance

The sequence of the content is classified by the story of Buddha (birth until death and after death) which is divided into 29 chapters. The telling story method is back to the last life of the Buddha that why could be the Buddha also present life and next life. This method is Ceylonese tradition.[14] The poetic style of this version found that the author created new terms form Pālā for narrating the story of Buddha. This version is praised to be the model of literary work in the way of poetic style. That can express the Buddha supernatural power for appreciation. The technique of composing is using the first term of Pālā verse to be lemma and also narrate within each chapter and also the similes appeared in 7 styles; 1) survival, 2) nature, 3) plants, 4) mineral, 5) appliance and belonging, 6) places and 7) etc.[15] The literary value is the special version that can be narrated more content, cover all content is better than other versions, nice literary flavors and nice poetic style. The influence of this version to Buddhist

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education concerning biographical Buddha literature is the study book for monks and novices who study 3rd level of Dhamma and also to be the book in literary study of higher education.

2. *Buddha's Biography from vol. 1-3 by Vajirañāṇavarorasa*

This version was in the period of King Rama V and was composed by Vajirañāṇavarorasa. The first publishing was in 2455 B.E. for the royal funeral of Worasedtasuda, she was the last princess of King Rama III. The cause of writing is the author wants to improve Buddhism to be more modern and scientific and also his father asked him to take responsibility about education of people and Sangha community. He started to set the education for the kingdom that is the new education for Sangha community. That focused both Dhamma and Pālā sections. The literary style is reasonable, empirical and realistic which can be applied in daily life. This version does not emphasis about supernatural power of the Buddha likes Pathamasambothigatha.[16] The narrative method is the prose for all books.

The structure of content Buddha's Biography from vol.1-3

1 st -3 rd book	Chapter and content
The 1st book [17] ancient India period	1 st : The story of ancient India
	2 nd : Shakya kingdom and Shakya clan
	3 rd : The birth of Siddhārtha Gautama
	4 th : The acetic life
	5 th : The Buddha's enlightenment the first time of enlightenment of Buddha, there are 3 chapters and the final of this has the appendix, the name list of cities and the birth of Buddha supernatural power analyzing.
The 2nd book [18] middle period: start from the Buddha stayed at Magadha until Anāthapindika offered Jetawan temple	9 th : The Buddha's business in Magadha
	10 th : The Buddha visiting Shakya kingdom and Kapilavatthu
	11 th : The Buddha visiting Kosala and Anāthapindika offered Jetawan temple.
The 3rd	His illness, last speech, last

book [19] final period of Buddha life until the Buddhist council	business, trip to Kusinālā, speech to Ananda, etc. and the event after Buddha's death.
--	--

The narrative method is historical and contemporary style. That focused on telling story more than narrative way and also does not emphasis about the Buddha supernatural power likes in Pathamasambothigatha. The image of Buddha likes the normal man who can practice himself to be the Buddha by the wisdom of human. The overview of the content is rationalism. The literary value of this version is the new one that is the contemporary style, scientific and rational and the influence on the Buddhist education can stimulate the student to have analytical thinking.

3. *"History of The Buddha From His Mouth" by Buddhadasa*

This book is new style of biographical Buddha literature was composed by Buddhadasa on 2477 B.E.. It differs from other biography Buddha literatures that do not emphasis on the Buddha supernatural power, and no narration by author. The cause of writing, he would have Buddha biography version from Tipitaka (Pālā Canon) that is only what the Buddha taught. He translated it to Thai, categorized by the events in Buddha biography and focused only Dhamma essences. The literary style is prose that was categorized, focused on only Dhamma essences and be good for students who want to study Buddha biography by Tipitika (Pālā Canon).[20]

Structure and content: 7 episodes

1-7 episodes	Structure and content
(1) Introduction	Buddha biography introducing: 12 stories
(2) 1st episode	The origination of Shakya clan until ascetic life: 21 stories
(3) 2nd episode	Ascetic life until Buddha's enlightenment: 35 stories
(4) 3rd episode	Buddha's enlightenment until the first sermon: 79 stories
(5) 4th episode	The first sermon until the time before Buddha's death: 170 stories and 24 stories of some Buddha biography
(6) 5th episode	The Buddha's death: 10 stories
(7) 6th episode	Last lives of the Buddha: 20 stories

It also does not have the narrative method for Buddha biography but it was translated and collected Buddha biography content in Tipitaka (Pālā Canon) by the events in

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Buddha biography The literary value, it is the literature that focused on only what the Buddha taught and Dhamma essences in Tipitaka (Pālā Canon) and also not be historical literature so that it reflect only the reasonable Buddha background clearly. The important point is the maintaining of history of Buddhism essences in Buddha time and no anymore narration and interpreting. That seems to bring the students can stay closer with the Buddha who was preaching that made students know the background of Buddha teaching with someone and situation. Including, they can let it to apply in their daily lives.

The influence on Buddhist education concerning biographical Buddha literatures, it is new style of biographical Buddha literature which is reasonable and real Dhamma essences. That no any the Buddha supernatural power. It is the book after biographical Buddha literature in the version of Vajirañāṇavarorasa. Buddhadasa would like this book to be real Dhamma study handbook of Buddha. The purpose of this book is to collect Buddha biography in Tipitaka (Pālā Canon). That is the event in Buddha time so that it is proper to the students who want to study real Buddha biography by history of Buddhism essence. Moreover, it influences to new style of studying Buddha biography by the content in Tipitaka (Pālā Canon) which emphasis on the value of Dhamma essences more than the narration of phenomenon in history of Buddhism.

4. The Comparison of the biographical Buddha literatures in Thailand

3 book versions Issues for comparison	1. Pathamasambhogatha	2. Buddha's Biography from vol.1-3	3. "History of The Buddha From His Mouth"
1. cause of writing	To have study book and book for biographical Buddha learning		
2. literary style	Prose, verse and simile	Prose, historical and critical style	Prose, to categorize issues by Tipitaka (Pālā Canon)
3. structure and content	29 chapters Last, present and next life	3 books; 11 chapters Only present life	7 parts by Tipitaka (Pālā Canon)
4. narrative	To	Modern	Excerpt

method	stimulate imagination of reader, use beautiful terms and some Pālā	and direct language, No the Buddha supernatural power.	from Tripitaka No analytical and critical format
5. literary value	Poetic terms and literary flavors	Contemporary, scientific, empirical and realistic style	Only Dhamma essence
6. influence on Buddhist education	The Dhamma study book for 3 rd level of Dhamma study	The Dhamma study book for 1 st level of Dhamma study	Dhamma essence for practiser

V. DISCUSSION

The cause of differences in 3 biographical Buddha literatures versions which are cause of writing: in each author also has different purpose. Pathamasambhogatha by Paramanuchitchinorot got the influence from Ceylonese tradition that is the devotionism and focus on praising Buddha who is special one. The content presents supernatural power of the Buddha, imagination and simile for making more understanding.

The biography of Buddha volumes 1 to 3 by Vajirañāṇavarorasa was composed in the time that Thailand has gotten the influences of rationalism and science for modern development. This book is rational style to present empirical Buddha biography and has no supernatural power of the Buddha but some contents are like this, the author would compose critically and concretely.

"History of the Lord Buddha" by Buddhadasa was composed in the time that Thailand has gotten the influences of rationalism, science and Vajirañāṇavarorasa as well for modern and contemporary Buddhism. Especially, the communication with modern society that is rationalism and empiricism: everything must be explained concretely and can apply in daily life. Buddhadasa want this book to be handbook of Dhamma practicing through Buddha biography about what a Buddha taught only the content in Tipitaka (Pālā Canon) that has no any narration by him.

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Therefore, 3 biographical Buddha literatures versions have the differences in cause of writings; their differences are the technique of content presentation. It would be the benefit for Buddhist education that can use the different essences for studying.

VI. RECOMMENDATIONS

A. Recommendations for Practices

1. Pathamasambothigatha is appropriate for the Buddhist educations and consistent with the devotionalism.
2. The Buddha's Biography from vol.1-3 is suitable for rational Buddhist studies,
3. "History of Buddha from His Mouth" is proper for the realism Buddhist educations.

B. Recommendations for Further Research

1. This research has only 3 versions of the biographical Buddha literatures in Thailand for comparison. That should have more versions for comparison. It might be all versions in previous and present time that will have the more various perspectives and more benefits for the Buddha biography studying
2. This research presents only 6 issues; cause of writing, literary style, structure and content, narrative method, literary value and influence on Buddhist education concerning biographical Buddha literatures. That should have more issues like "The difference of biographical Buddha literature in Ceylonese tradition and rational" and also "The interpretation of supernatural power of the Buddha in biographical Buddha literatures", etc.
3. This research is only comparison of biographical Buddha literatures in Theravada Buddhism which should have more versions such as Mahayana and Vajrayana Buddhism. That will have other perspectives of biographical Buddha literatures and more benefits for the Buddha biography studying.

VII. CONCLUSION

The 3 versions of biographical Buddha literatures by 3 authors are the development of biographical Buddha literatures in Thailand which are reflected the idea in modern society. On the other hand, they can be the factor that has the various literatures. The education institute and Buddhist education organization should let the knowledge from this research to be the media for Buddhist education in the dimension of critical analyzing for various biographical Buddha literatures understanding. Pathamasambothigatha by Paramanuchitchinorot is the Buddhist literary work model that reveals biographical Buddha content by imagination and supernatural power of the Buddha. It is the model of beautiful

and marvelous Palā using also to conserve Thai as well. The next book is The Buddha's Biography from vol.1-3 by Vajirañāṇavarorasa is the rational Buddha biography studying model. That concerns the realistic and historic content. It is called the new dimension of modern and contemporary Buddha biography studying. The last book is "History of Buddha from His Mouth" by Buddhadasa that is the model of Buddha biography studying for Dhamma essence that realizes through the life of Buddha. Therefore, Pathamasambothigatha is devotional, the biography of Buddha volumes 1 to 3 is rational and "History of the Lord Buddha" is pragmatic.

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Development of Integrated Policy for Local Food Security and School Lunch, in Mae Rim District, Chiang Mai Province

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Abstract— The research presented in this paper aims to analyze demand-supply and local policy of food security and school lunch system in Mae Rim District, Chiang Mai Province, based on the concept of participatory action research (PAR). Data was collected from 574 school administrators, teachers in charge of school lunch program, parents and students, 1362 farmers, and 85 local administrative officers, community leaders and key informants, by questionnaires, in-depth interviews, focus group discussion and participatory assessment of activity-based learning outcome. The results showed that; 1) Total demand of agriculture products for lunch ingredients was only 37%, such as rice, vegetables, fruits, and eggs, produced by local farmers. The management process of school lunch services based on government regulations framework, especially procurement and school lunch budget (20 baht) per person per day, that's difficult for selecting quality raw materials and increasing nutrition or essential nutrients for school-age children. 2) Mae Rim district had enough farmland for food crop production and food security, especially rice, the most production (64.3%), vegetables-herbs and fruits (20.7%) but organic agriculture production is only 14 percent of total farming. 3) The most concern in blood testing of 400 cases, from 245 farmers and 155 students, found that only 14.8 % were in normal and safe levels but 55.5% in risk and 29.7% unsafe, indicating the health risk of farmers and school-age children that needs to be monitored, followed up, and changes their consumption behavior. 4) The development of local policy to promote local food into school meal depends on the key success factors and strategic management to reach sustainable goals. The local administrators should have authorize to manage themselves and could be linked between farmers and consumer's demands. The most necessary is to implement a strategic management process, along with creating local leaders as change agent. 5) The proposed strategies were I-FLAT, representing of 5 process activities; Integration-Farming-Lunch-Adaptation-Transformation, as a local movement model to bring healthy food from local farms to school lunch. The issue of food security became a major concern on improving well-being of school-aged children, as well as increasing everyone's awareness on environmental and economic challenges, regarding food literacy, health behavior and agriculture systems. However, all improvement requires external support factors to take more seriously and continually for supplying organic products to school meals, such as national policies, budget allocation and procurement regulations, etc

Keywords— Development Integrated Policy, Food Security, School Lunch

I. INTRODUCTION

School lunch program is one of the government's policies, implemented more than 40 years, to provide free school lunch to students in preschool and primary school for improving nutritional status and physical and mental health. At present, the Office of Basic Education (OBEC) is the main host responsible for school lunch services, more than 29,000 schools all over country.[1] The budget allocated to school, at 20 baht per person per meal for 200 school days, to purchase rice, vegetables as raw material and ingredients for cooking in

school's kitchen where involved teachers and parents take turns or hire external service of private sectors in cooking. According to school policies and announcement, all meals will be prepared in ensuring food quality, safety and healthy with continuous monitoring and evaluation at school level, not only to improve nutrition status but also to educate children about health, food and agriculture through learning activities. [2]

In addition, schools and communities are encouraged to grow organic fruit and vegetable and bring raw materials into the school lunch menus, support more campaign on safe food consumption. Only a few schools have been successful in

farming and can be a learning center of communities, while many are unable. Most children would not eat fresh fruits and vegetables from farms but they tended to eat meat, western snacks and fast-food.[3] Regarding to the fact that some parents and teachers lacked of knowledge and practical skill in nutrition quality and quantity that children should get but provide what children like. That will affect children health problems, country economy, and social impact in long-term. Therefore, it is necessary to encourage and develop children health to achieve age-appropriate development, especially physical development which may affect their intellectual, emotional, mental and social development and should work closely together with the parents, teachers and all involved sectors in community.

The Fourth National Health Examination Survey of Thai population, data collected between 2008 and 2009, indicated that 9.3% or 1,080,000 of Thai children aged 1-14 years were overweight and obese, 520,000 children (4.4%) were stunted with body weights, 580,000 children (4.1%) lower than standard and some were malnourished of iron, iodine and vitamins. In addition, it showed that Thai children consumed only 1.4 portions of vegetables and fruits daily, three times lower than WHO criteria (not less than 5 portions/ day). [4] The SEANUTS research, also indicated that more children will be overweight, shorter and have lower IQ over the next decade. However, under the National Strategy on Food Management (2017-2036), it has been found the key focus that Thailand is food security, nutrition, important food source of the world that high quality, safe and nutritious. [5] The specific objective of this research focus on public policy process to promote local food and seasonal product from organic farm to children's meal in school and families, by participatory learning development. The proposed policy can be implemented to improve food crops and distribute to school, as best practice policy model for other area.

II. RESEARCH OBJECTIVES

The objectives of this research article were 1) to analyze the current situation of school lunch service systems and the demand of organic products as raw materials in the school meals, 2) to develop farmer's capacity and productivity management in supply systems and 3) to synthesize the local public policy in food security development and increasing organic products and community involvement to school lunch program by local participation.

III. LITERATURE REVIEWS

Food security;

Food security was defined in the 1974 World Food Summit as "availability at all times of adequate world food supplies of basic foodstuffs to sustain a steady expansion of food consumption and to offset fluctuations in production and prices". In 1983, FAO expanded its concept to include securing access by vulnerable people to available supplies, implying that attention should be balanced between the demand and supply side of the food security equation: "ensuring that all people at all times have both physical and economic access to the basic food that they need" [6].

School Lunch Program

School Lunch Program (SLP) has been considered as an important contributor to children's health outcomes as well as to improve education access when children are fed at school, they tend to stay and learn better. In Thailand, SLP has been implemented more than 30 years to reduce the number of children who were underweight., Ministry of Education transferred the responsibility of managing school lunches in government primary schools across the country to the Ministry of Interior, In accordance with the 1999 act to decentralize authority to local government organizations. Therefore, the school lunch project was transferred to local government organizations beginning in the fiscal year of 2001. In 2002, the Budget Bureau issued specific principles and regulations for budget management, which tasked the local government organizations with distributing and supervising the management of school lunches in their relevant areas. In 2008, the cabinet resolved to increase the subsidies for school lunches to ten baht per person, further increased to thirteen baht per person in 2009, and again to twenty baht per person in 2013. The rate of twenty baht per student is still being used today (The Secretary of Cabinets, 2013). [7]

However, the school lunch budget cannot be allocated for students above the sixth grade. This means that schools categorized as an opportunity expansion school, providing instruction for grades seven to nine, will not receive funds from this budget. The source of the budget for the school lunch program comes from 3-main sources, are: (1) Local government organization subsidy (2) Funding sources that receive benefits from the school lunch project in primary school, and (3) Other sources, including donations (School Lunch Project Fund Bureau, 2016).

Organic Agriculture Policy

As a national agenda (2005-2007), organic agriculture policy consisted of four goals including to transform from conventional farming to organic farming, involving 4.25 million farmers in the organic conversion system, to decrease the use of agriculture chemicals by 50 percent within four

years, to increase the organic farming area to 85 million rais, and to increase the growing organic market.

The cabinet approved the first national strategic plan for organic agriculture development 2008-2011 in 2008 in order to provide a framework to implement an organic agriculture policy to achieve the goals of enhancing the quality of life of people, both producers, farmers and consumers, by changing to environmentally friendly farming, of achieving food safety and food security, and increasing the number of organic farmers and organic area with full supply chain management and allocated budget to promote using of organic fertilizer instead of chemicals.

The draft of the 2nd national strategic plan for organic agriculture development (2013-2016) states that vision in the new plan of organic agriculture development is to make Thailand a hub of ASEAN's organic agriculture based on Sufficiency Economy Philosophy. The objectives for organic agriculture development were to increase organic farmland by 10 percent per year, increase production and consumption by 10 percent per year, and to develop at least eight organic products which meet the standards and reduce chemicals in agriculture by 5 percent per year. [8]

The organic agriculture policy, at local community level, has been implemented mainly by Office of Provincial Agricultural Extension and Land Development Department in order to promote organic fertilize, to encourage farmer 's development and promote community farm enterprises in term of transferring technology, providing materials for organic production, supporting and supervising. However, the main tasks are training in several topics, such as soil analysis, land use planning and development, conducting experiment in soil improvement by biotechnology and water conservation practices, seed production for cover crops.

Activity-based Learning

The activity based learning, problem-and project-based learning (PPBL) program are innovative learning in 21st century were used in the study area, with the goal of offering experience-based guidance for methodology/approach. The findings can inform and support the ongoing transformation in sustainability education with the ultimate objective to build students' capacities to address and solve wicked sustainability problems in the real world, competently collaborating with partners from government, business and civil society. The case study presented the diverse ABL/PPBL activities for pilot group and evaluating learning outcomes [9]

IV. RESEARCH METHODS

A. Research Design

Based on the concept of participatory action research (PAR) and quantitative research were used. The data were collected from 574 school administrators, teachers in charge of school lunch program, parents and students, 1362 farmers, and 85 from local administrative, community leaders and key informants, by questionnaire, in-depth interview and focus group discussion. The qualitative data were analyzed by using content analysis whereas quantitative data were analyzed by using descriptive statistics.

Part 1 : Data collection from target group were 11 sub-districts in Mae Rim District, Chiang Mai Province, as a study area, which consisted of 21 primary schools under OBEC (Office of Basic Education Commissions), 5 schools and 23 kindergarten centers under Sub-district Organization: SAO). The total number of students approximately is about 7,082 students received lunch service.

Part 2: Learning process and practices, the number of participants were from 4 pilot group under local collaborative agreement, consisted of

- 1) *primary school and kindergarten,*
- 2) *farmers,*
- 3) *local officers and policy makers and*
- 4) *District Health Promoting Hospital.*

B. Research Process

The process of this research has developed into 5 steps, consisted of document review, concept analysis, research tools and measurement design, data collection, pilot project operation, learning outcome assessment and proposed the local policy, as following;

- 1) Documentary reviews from primary sources; research articles, books, and other related documents,
- 2) Data collection from target group, at study area, to analyze current situation of demand-supply systems of organic farming and school lunch.
- 3) Training & demonstration & practice of pilot group, through activity-based learning, collaboration & agreement.
- 4) Operating pilot project, monitoring & evaluation and learning outcome assessment.
- 5) Synthesize local policy process for food security from farm to school lunch and propose integrated policy by SWOT and TOWS analysis.
- 6) Proposed integrated policy for local development.

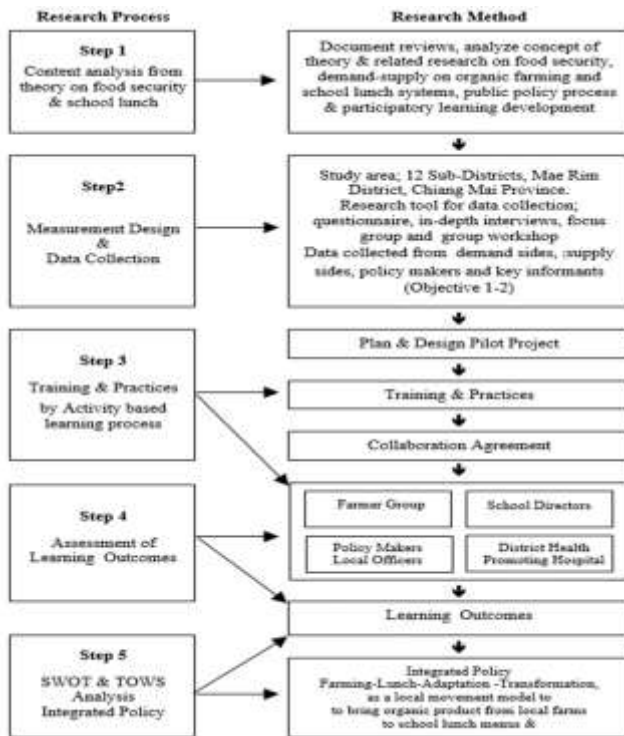


Fig.1 Research process & methodology for Integrated Policy of Local Food Security to School Lunch Development

V. RESULTS

The results are classified in 4 aspects, as describe below;

1. Situation analysis for Mae Rim district;

A situation analysis and document reviews of current circumstances and review of relevant research publications, as well as brainstorming with representatives from all sectors. Mae Rim is the second largest district in Chiang Mai Province, consists of 11 local administrative organizations, five sub-district administrative organizations and six sub-district municipalities. There are 92 villages, 37,662 households in total area of 455 km² (or 284,275 rai), and the population is estimated at 94,337 people, some of ethnic group population about 10%. Currently, Mae Rim districts lost agricultural land in between the production year 2000/01 and 2016/17, of 29.9%. It has been developed quickly in every aspect and becoming several types of business, increasing of infrastructure makes farming area becomes housing project, restaurants, coffee shop, resorts in tourism industries.

The main career of villagers are farmers and some developed their farms into flower gardens as one of the most travel destinations, surrounding with natural resources, such as mountains, forest, waterfalls, streams. Due to the decreasing

of farmland and increasing land prices, the more development of infrastructure, the more small-scale farmers need to develop their career to earn more income and utilize limited land efficiently for local consumption. However, Mae Rim District still has high level of biodiversity, associated with local resources, farmlands and agricultural labors which are the key factors to produce sufficient food supply chain for internal and for external markets.



Fig 2. Organic farming area, represented to self-sufficiency and food security of Mae Rim District

There are many problems found in farming area, not only land used and deforestation but also water resources in drought season, flooding in rainy season, insufficient and unclean water, because of lacking of good management in rural area. Natural resources were utilized, both directly and indirectly for production. Most of farmers focus on growing economic crops or cash crops with a rapid return, good yield, and supported markets. Fertilizers and chemical pesticides were brought to use into farming, and impacting negatively on farmers' health, environment, soil fertility loss, as well as air pollution found in atmosphere.[11] These are main reasons why many small-scale farmers could not produce as much as expected, according to low production, low prices, but high cost of production.

2. School lunch situation and consumer demand for organic fruits and vegetables into school lunch.

Result from quantitative study, collected from 49 schools and preschools under the Office of Basic Education Commission (OBEC) and local administrative organizations, total number of students were about 7,082 persons who have received lunch service. Total 574 informants in step-II were school administrators, teacher in charge of lunch menu and meal makers, including students and parents. During step-III, the number of participants in pilot project and activities were 866 students from 9 school, the result are following ;

2.1 The schools, at least 77.5%, have established plan and policies on school lunch program, for improving student nutrition problem, only 42.7% using the Thai School Lunch (TSL) as a tool for preparing and serving school meals with healthy and safety standards required, by calculated the list of ingredients and assessed the nutritional value of food such as energy, protein, fat, carbohydrates, iron, vitamin B1, B2, C, fiber, sodium and sugar.

2.2 There are at least three persons to involve with school lunch system; the first one is school administrators, in charge of policy level, the second and third ones are operating level to prepare school menus, such as nutritionist/ teacher assistant or cook/food services management. However, the schools mostly prefer operate their school lunch services, by outsource contractors due to the limitations of budget and time.

2.3 The management process of school lunch based on government regulations framework, especially procurement and school lunch budget (20 baht) per person per day, that's difficult for selecting quality raw materials and increasing nutrition and essential nutrients for school-age children.

2.4 Total demand and estimated cost of organic product for school lunch ingredients average was only 37%, such as rice, fresh fruits and vegetables, and eggs which produced by local farmers.



Fig.3 Estimated cost and demand of raw materials

Actually, the school mostly purchase raw materials from external big stores or supermarkets more than in local farm in their community. Therefore the income of fresh products will be income for outside traders not local farmers

2.5 Consumer satisfaction surveys on lunch services and management, it found that the total average score was at a moderate level ($\bar{X} = 4.17$), with the observation note that some items had lower score than the others responses and should be focused on development, as follows: (1) quality of vegetable production, raw materials that should be chemical free (2) budget for raw material procurement (3) adequate amount of food according to student needs (4) taste, easiness eating (5) variety of menus (6) nutritional status and development according to age.

3. Agriculture Situation & Food Supply Chain

Result from quantitative study, collected from 1,362 farmers, found that 65% of the sampling farmers were male and average age of 59.5 years old (lowest: 31 years old and highest: 80 years old). Most of them (85.2%) had primary education level, average experience in agriculture longer than 20 years (69.7%), had low potential in production. The average size of farmland holding was 3-6 rais and most of farmland in the district were within national forest reserves. It was 81.5% of agriculture as main career and yearly total income is over 30,001baht/year. The most of farmers have

high level skill in farming but lacking of knowledge in organic standard and production, include trading techniques, especially online media platform in modern trade.

3.1 Farmland and Agricultural Products

The results indicated that Mae Rim had enough farmland for food security and sufficient for food crop production, but the proportion of organic farming is only 14% and GAP 17%, as showed in Fig.4 and Fig 5.

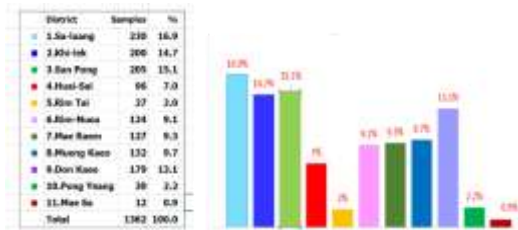


Fig.4 The percentage of farmland and farmer household in each sub-district

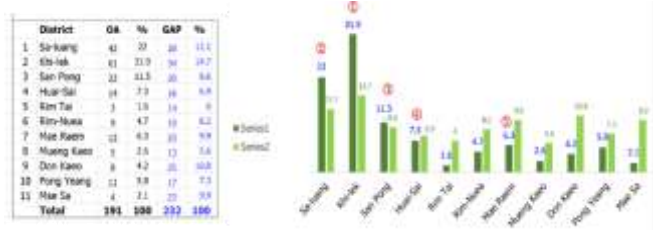


Fig.6 The comparison between organic farming and Good Agricultural Practice (GAP) in each sub-district

As showed in Fig. 5-6, the areas with highest number of organic farming in top 5 sub-districts, were Khilek (31.9%), Sa-luang (22%), San-pong (11.5%), Huai-sai (7.3%) and Mae Ram (7.3%).

3.2 Agriculture Products & Standardization.

Many kinds of plants can be grown in Mae Rim district, especially rice (64%) the most, fresh herb, vegetables and fruits (26 %), including eggs (4%), and others (6 %), such as grains and several kinds of beans. There are a few types of farming, consisted of chemical farming (36%), mixed crop-livestock farming (24%), GAP or Good Agriculture Practice (17.1%), organic farming (14%) and others (9.0%), such as agroforestry or home garden cultivation. In addition, the results indicated that most farmers have never been certified by any standards (71.5%), the rest (28.5%) were certified by following standardization;

- 71.5 % non-standard certification
- 15.3 % GAP (Good Agriculture Practices),
- 7.0 % PGS or Participatory Guarantee System,
- 5.6 % Organic Agriculture Certification Thailand
- 0.6% International Organization for Standardization

respectively, as shown in Fig.6



Fig 6 Proportion of total products and types of farming in study district

3.3 Problems and limitations in organic farming:

Soil and water are very essential natural resources for organic agriculture, as a and based on natural techniques which does not use chemicals and does not contaminate through toxic chemical. Success farming in small scale rely on local conditions of soil and water, as the main factors of production, but many of them still lacking of knowledge and productivity improvement. What farmer need to know about soil and water improvement, land used development, seed production and technology transferring.

Regarding to the insufficient processing, the following limitations have become increasingly important to discuss.

- There was no standard certification system available for organic products and lacking of local distributors, as a management unit of demand-supply chain services for fruits and vegetables to school.
- Duration of organic farming, farmer requires at least 1-3 years to develop their organic process, the pilot group have been engaged in organic farming operation at least 3 years. The longer time of organic farming operation depends on the different type of organic standards.
- The total number of organic fruits and vegetables in pilot group was less than from conventional farms because of the duration of development while fresh products from chemical farming were the main raw materials for school meals.
- Moreover, the price of organic products still stable and higher than conventional vegetables which depend on market prices, therefore the organic products supply never been increased in short-term demand.

3.4 Agricultural Practices

Regarding to pilot project and collaborative agreement, there were 3 sub-districts of organic groups were selected and were conducted for shortly 3 months. It found that supporting knowledge, technology, innovation and markets can help organic farming at local level, especially for these farmers who have more experience and well understand the concept of sufficiency economy. The on-site training (short courses),

demonstration and practices on organic farming were designed for farmers in pilot group, as shown in Fig.7

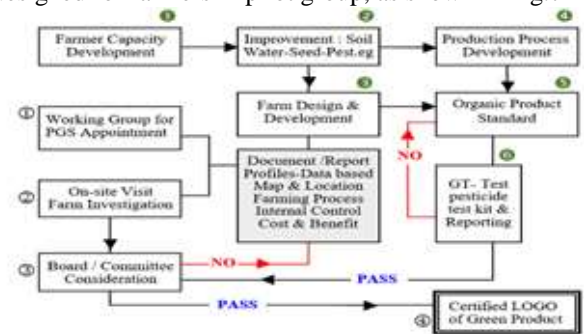


Fig 7. Agricultural practices of food Safety in organic farm in 3 sub-districts.

As shown in Fig.7, it is one kind of an alternative model for strengthening of farmers' occupation groups, making more confidence in product quality standards and focusing on information management system of agriculture and food products, farmer's profile information, location, production process standard of food sources and quality product, all are important for sustainable consumption.

3.5 Awareness of health issues

Blood testing is one of the most important evidence to keep track of overall physical well-being which also indicating the risk of surveillance,

a) Farmer Cases; the results of blood testing, or the enzyme choline esterase levels of 245 farmers from 3sub-districts, indicated that only 27.4 % were in normal and safe levels but 38.8% in risk and 33.8% unsafe, as shown in Fig.8

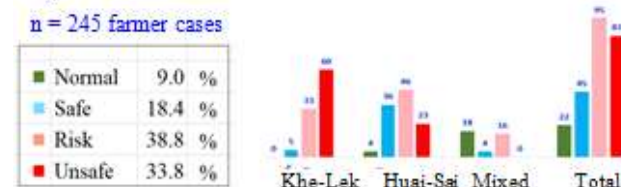


Fig.8 Comparison of blood testing of 245 farmer
b) Student cases, the results of blood test from 155 students, the result showed that only 14.8 % were in normal and safe levels but 55.5% in risk and 29.7% unsafe, indicating the risk of school-age children health that need to be monitored,

followed up and changes their consumption behavior for eating more fruits and vegetables.

n = 155 student cases

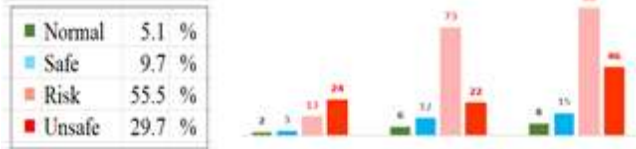


Fig.9 Comparison of blood testing of 155 student cases between school 1 and school 2

4. Local Policy Development for Food security

The key informants were representative policy makers from 11 sub-districts, 83.5% of total target (103 persons) by in-depth interviews, focus group and public hearing. Most of them were male (65%), aged between 50-59 years (73.9%), had primary/ secondary education (62.8%), mostly working in current position as leadership less than 5 years of (54.3%) consisted of village leaders (45.3%), local administrative and municipal officer (30.5%), and others (24.2%). Some leaders engaged with farming, trading and self-employed (76.8%), some served as community leaders only (23.2 %) but most of them were in debt (68.5 percent), the result are following;

4.1 From National Vision to Local Policy; Due to the organic agriculture production became a national policy influenced by the global trend of food safety and food security and international markets competition and trading agreement that do not allow chemical contamination in food. To promote food security and food safety into school lunch ingredients rely on key success factors and strategic process to achieve the sustainable goals. SWOT analysis and TOW matrix are used (in step 5), as a tool for establishing strategic plans and effective policies which local administrative organizations are involved and need more authorize to manage by themselves, along with creating local leaders as change agent and make engagement between producers and consumers.

4.2 SWOT analysis; Reviewing the relationship between strengths, weakness, opportunities, and threats of Food Security Development, the results are in Table 1

Table 1 SWOT analysis of Food Security Development

Strengths	Weaknesses
S1: There is agricultural area large enough for food crop production with different location of plain and highland areas, and climate is conducive to the cultivation of many types of vegetables, fruits and herb as consumer demands.	W1: Most of farmers focus on increasing product quantity more than quality, chemicals were used in farming and destroy the environment, still burning of waste, especially on farms, W2: Only a few small farmers can produce organic

S2; Rice is main productions that farmers can produce and it is one of school meal and all groups of consumers need.

S3: Organic farmer Groups can produce a lot of local plants and vegetables that contain a high nutrition for health benefits

S4: There are farmer leaders and number of farmers with experience in farming enough to produce food crops into school meals,

S5; There are large number of population and consumption in Mae Rim and variety demand of food products to schools, hospitals, businesses, hotel and government agencies.

S6; Surrounding with beautiful environment & natural resources that attract tourists come to visit and generate income in tourism and food services.

farming, because of the process period of quality control that takes time, at least three years, to improve all processes of production factors standard, such as soil quality, water resources, seed .

W3; Community still lacking of health literacy, nutritional food for children/household.

W4; Food Makers need to know and practice on good hygienic nutrition and quality of raw materials from outside markets to use in cooking

W5; Allocated budget for lunch per head is insufficient to cover the cost of quality ingredients.

W6; No QC system: Quality Control and standard quality inspection in raw materials, vegetables, fruits, and food

Opportunities

O1; SDGs and National strategy focus on green growth, food safety, sustainable agriculture (SDG-2), health of school-age children (SDG-3), sustainable production and consumption (SDG-12)

O2. National policy on organic agriculture promotion increase opportunity in various aspects, such as academic knowledge, health, budget, and marketing

O3: The increase of consumer's demands for organic products and healthy food, good quality, safe food products with high

Threats

T1; The increase of tourism business and housing effect on water resources and users between the business sector and agricultural cultivation.

T2; Numerous conditional of organic agriculture policy from government agency to local communities were not supported

T3; The effect of unstable political stability and policy changes affect the direction of local development and policy on self-management

T4; climate change affecting natural situation, forest, water floods, landslides, droughts, agricultural waste, etc.

<p>Nutritional value continuously supported by the government to expand organic markets.</p> <p>O4 Policy to promote lifelong learning, skill development to all people, especially the young people and adults in farming skills</p>	<p>T5 Some law and regulations are too old for moving on organic farming development</p>
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4.3 TOWS Matrix to make decision on Strategic Plan and integrated support policy of food security and food safety development. as show in Fig 10

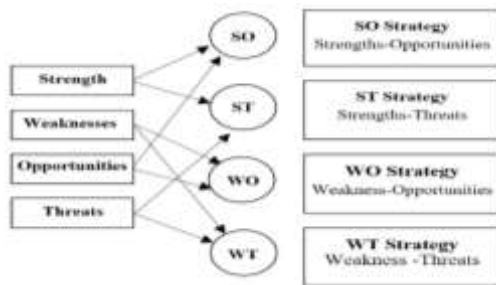


Fig.10, TOWS matrix were used for integrating the related policies on food supply chain and organic agricultural product of sustainable agriculture, the results showed the 4 alternative strategies as follows:

Strength-Opportunity (SO) Strategy: as the proactive strategy, use strengths as selling points while opportunities comes, consisted of making collaboration agreement with local authority, private sector together with community engagement, urgent support in any development programs for organic farming improvement, eg. open green market for organic product, develop the quality standard of product-production process through supply chains, capability building for farmers (producers), gain more knowledge & skill, to meet consumers and market demands, encourage new young farmers to participate in the organic farming network.

Strength-Threat (ST) Strategy or defensive strategy, consisted of organize training and practice on production technology in farming in risk situation, develop an alternative market system / green market / online market for product distribution, submit an action agreement between producers and consumers, improving product process from upstream to downstream process, monitor and evaluate local policy, plan and budget supported.

Weakness-Opportunity (WO) Strategy ; to support the production factors, consisted of ; take action seriously to solve the problems of the integrated agricultural system, in land used , water resources and environment management,

promote BCG in action for agricultural products development, food waste, by-products, high-value products from waste,

improve quality control standards systems and mechanism, establish technical support to be QC working group, raise more awareness and improve knowledge of health literacy, food literacy and nutrition for everyone, develop learning space for all in local area, and support self-access system via digital learning society

Weakness-Threat (WT) Strategy: consisted of review and integrated approach of strategic plan, encourage local sector on self management, development support how to solve problems by themselves, revise appropriate guideline for production development of food and nutrition menu. improve discipline, manners, food consumption behavior of children, closely with teachers and parents. incentives children to eat vegetables and fruits, reduce sweet, oily, salty food Junk.

4.2 The proposed strategies were I-FLAT, representing of 5 keywords (1) Integration (2) Farming (3) School Lunch (4) Adaptation (5) Transformation. That's is a local movement model to bring healthy food from local farms to school, which become important issue on well-being of school-aged children, as well as increasing awareness of environmental and economic challenges local food and agricultural systems, as shown in Fig.11



Fig.11, proposed strategies based on I-FLAT concept

VI. DISCUSSIONS

1. Demand for organic fruits and vegetables to be used as raw materials in the school lunch system;

The results found that the demand of organic fruits and vegetables to be used as raw materials and ingredient in school lunch and total value was 325,828 baht, from rice, vegetables, fruit, eggs, meat, seasonings and milk but farmers can supply only 37% (trading value of 121,216 baht/month). Therefore the income of fresh products will be income of outside traders not local farmers. It was indicted that the important supporting factors for the development of nutrition

food towards sustainable goal, all stakeholders need to make clear their vision, missions, plan and policies, along with their collaborative agreements. This can be explained that was no guideline for inspecting the quality standard of product and ingredients because of no clear policy and other supporting factors that consistent with Usawadee's research which confirmed that important supporting factors of nutrition food development was the clear policies and missions at all levels, such as local policy and national policy that promotes the production of organic crops to school meals, in cooperated with the key stakeholders such as school, parents, farmers, community and local policy makers.

2. Farmers' Capacity and Productivity Development

Learning process is one best way for human being development by enhancing knowledge, health literacy, food literacy, food security and farming through the activity based learning, like "farming-lunch cooking-process improvement - transformation" used in this research. It can contribute to enhancing everyone's potential in various dimensions, including knowledge, skills and attitudes, and will lead to positive behavior change in the future, especially for children's development. This is consistent with Usawadee's study, which indicates that the learning activities through farming for lunch project helped to promote students' knowledge, skills, abilities and integrated learning of students. Moreover, it promote food menus from local vegetables to households and communities, also making food sources both at home and school.

It also was found that farmers were able to produce rice the most, vegetables, herbs and local products. It can be an opportunity and possibility for school to buy rice products from farmers, including local vegetables as raw material/ingredients to school lunch menus, but the government agencies must be sincere in solving the structural problems of agricultural production in land used, water resources, and main production factors for farm management.

However Sub-district Health Promoting Hospital, as a local health promotion sector should be the main unit in enhancing knowledge of health and food literacy for taking care of people health while local administrative organization have to support some kind of tools, materials, equipment for chemical residues testing in all kind of food products.

VII. CONCLUSION

The research aimed to analyze current situation of school lunch service systems and demand of organic products as raw materials in the school meals, to develop farmer's capacity and productivity management in supply systems and to synthesize the local policy in food security development and

increasing organic products and community involvement to school lunch program by local participation., based on the concept of participatory action research (PAR). The data was collected from 574 school administrators, teachers in charge of school lunch program, parents and students, 1,362 farmers, and 85 local administrative, community leaders and key informants, by questionnaires, in-depth interviews focus group discussion and participatory assessment of activity-based learning outcome. The results showed that;

1) Total demand of agriculture products for ingredients was only 37%, from rice, vegetables, fruit, and eggs, produced by local farmers. The school lunch management based on government regulations framework, especially procurement process and budget per person per day, that's difficult for selecting raw materials and increasing nutrition and essential nutrients for school-age children.

2) Mae Rim district has enough farmland for food crop and food security, especially rice, the most production (64.3%), vegetables, herbs, fruits (20.7%), the proportion of organic agriculture production is only 14%. Most producers are small farmers who used to sell their product through middleman. The management by grouping should be an appropriated model for strengthening farmers' group, by making more confidence in quality standards of outstanding products and paying more attention on information management system on food production and consumption.

3) The most concern about blood testing of 400 cases, from 245 farmers and 155 students, found that only 14.8 % were in normal and safe levels but 55.5% in risk and 29.7% unsafe, is indicating the risk of school-age children health need to be monitored, followed up the changing in their consumption behavior more than before.

4) The development of local policy to promote local food into school meal depends on the key success factors and strategic management to reach sustainable goals. Local administrators should have authorize to manage themselves and could be linked between farmers to consumer's demands. The most necessary is to implement a strategic management process, along with creating local leaders as change agent.

5) The proposed strategies are I-FLAT, representing of 5 process activities; **I**ntegration, **F**arming, **S**chool Lunch, **A**daptation and **T**ransformation, as local movement model to bring healthy food from farms to school lunch. This is very important to raise social concern on improving well-being of school-aged children, as well as increasing everyone's awareness on environmental and economic challenges of local food and farming systems.

However, all improvement requires external support factors to take more seriously and continually for supplying organic

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products to school meals, especially national policies, budget allocation and procurement regulations.

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An Approach to Online Marketing for Promoting Striped Snake-Head Fish Products

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Abstract— *The purposes of the research article were to develop online marketing channels and marketing communications for snakehead fish products. This research used a mixed-method by surveying consumer behavior through questionnaires and setting appropriate marketing policies. The study found that targeting consumers were female, born in 1981-1996 (or Generation Y), graduated with a bachelor's degree, worked in a private company, had an average income of 10,001-20,000 Baht per month, used to buy products through Shopee, Lazada, and Facebook 1-2 times a month, and costed 300 - 500 baht per time. When online marketing was promoted, we can increase the average revenue on processed products to 26,393.33 baht per month or 32 percent.*

Keywords— *Striped Snake-Head Fish, Online Marketing*

I. INTRODUCTION

From an in-depth interview with Mr. KajonChuekham, owner of the Wiset Snakehead Fish Farm and chairman of the Anghong Fisheries and Processing Cooperative, Huai Khan Laen Sub-district, Wiset Chai Chan District, Ang Thong Province, it was acknowledged that there are 44 members of the snakehead fish feeding in the cooperative, own 94 fish ponds, and the annual production of snakehead fish is approximately 1,500,000 kilograms per year. (Information from an interview with Mr. KajonChuakham, owner of the Wiset Snakehead Fish Farm on June 27, 2017) From the current situation of snakehead fish feeding, it is found that the members are facing several problems in the feeding system that need urgently help. The problems are 1) have a high production cost, 2) have the continuous improvement to get Good Agricultural Practice (GAP) standard sustainably, 3) develop the processed products to increase the value of snakehead fish, 4) obtain Good Manufacturing Practice (GMP) on product processing to ensure that the products are qualified and safe for consumers, 5) invent the energy-saving machine to make sun-dried or dehydrated snakehead fish, 6) develop traceability system that can track and trace each step of snakehead fish production, and 7) make online marketing that is suitable for Anghong Fisheries and Processing Cooperative.

Currently, Anghong Fisheries and Processing Cooperative has a lot of problems in marketing because there are too many fishermen who already produce snakehead fish for sale in various places in the central region. Moreover, snakehead fish from Cambodia came into the Thai market, causing snakehead fish to be cheaper. Therefore, the cooperative and its members have to find new customers from new target customer group. Today, Online marketing plays an important role in the digital era because most people can access to online systems and the lifestyle of the new generation needs more convenient and comfortable. The online marketing meets their needs because they can order the merchandises and wait for them at the desired address without having to travel by themselves.

Therefore, the researcher will develop online marketing promotion guidelines for snakehead fish products that is suitable to increase customers and revenue for Anghong Fisheries and Processing Cooperative

II. RESEARCH OBJECTIVES

The objectives of this research article were to develop online marketing channels and marketing communications for snakehead fish products.

III. LITERATURE REVIEW

Online Marketing

Online marketing is a set of tools and methodologies used for promoting products and services through the internet. Online marketing includes a wider range of marketing elements than traditional business marketing due to the extra channels and marketing mechanisms available on the internet

Online marketing can deliver benefits such as:

- Growth in potential
- Reduced expenses
- Elegant communications
- Better control
- Improved customer service
- Competitive advantage

Online marketing is also known as internet marketing or web marketing. It includes several branches as shown in Fig.1



Fig.1 Branches of online marketing

Branches of online marketing[1]

The website- is either a personal website or a corporate website or even a personal blog hosted on an automated marketing platform or other type (such as WordPress or Tumblr)[2]. For a company, a website is useful both as a starting point and as a destination. It is understood that marketers of the company carry out, for example, a digital marketing campaign to promote a website (starting point) in order to get more visitors (destination).

Search Engine Marketing (SEM)- is the foundation of online marketing through two important functions:

a) "Search Engine Optimization (SEO)";

SEO involves appropriate optimization techniques to obtain higher rankings through search engines, according to options for products, services, offers, suppliers, distributors, customers, end-users, etc. It has two major components: "On Page SEO" and "Off Page SEO".

b) *Paid Search Advertising (PSA).*

PSA (paid search ad) is designed to attract visitors to place ads of interest in search engines. The most popular approach is "Pay Per Click" (PPC), and Google Adwords is the most

popular tool that allows users to advertise on Google and the partner network.

Social Media Marketing (SMM) is another functional part of online marketing that has become quite important in recent years. From a functional point of view, social media represents "a group of Internet-based applications that are based on the ideological and technological foundations of web 2.0 and allow the creation and exchange of user-generated content" [3]. Social media marketing actions are opportunities that include text, images, video and networks for all business partners designed and developed according to online marketing methods [4].

Affiliate Marketing- many experts in the field claim that this type of affiliate marketing works in relational terms as follows: 1) the trader or sponsor who created the affiliate program; 2) the intermediary, the person who accepts the conditions of the affiliate program; and 3) the network owner (affiliates).

This entity generates revenue in this position by providing space to create affiliate programs for merchants[5]. The intermediary is formally hired to meet the affiliate marketing requirements set by a business (trader), and will receive a commission for each visitor of the company's site (which applies the method)[6].

Content Marketing- in the previous approach to SEO, it is basically highlighted the facility of creating links through the application of search optimization techniques. Starting with 2011, however, this trend has changed, with content marketing becoming the new SEO. This aspect reveals the importance of well-developed content as the basis of SEO, which results in an increased presence on the Internet and not through the ways to build cheap links.

Email marketing- is one of the most important tools of any digital marketing campaign. Despite the increased influence of social media, email is still the most effective way to convert visitors or readers into customers. However, considering e-mail marketing as a concept, it is the process of collecting email addresses from current and potential buyers (individuals and/or legal entities) interested in the products or services of a company in order to send them newsletters, offers etc.

Mobile Marketing- More and more mobile users visit websites to integrate into social networks or to identify products (services) to buy them immediately or later. In fact, it is estimated that 30% of the traffic flow on a website is made by visitors via mobile phones[7].

Mobile marketing involves dedicated business staff in creating visible and mobile content or ads. According to experts, websites should have mobile-compatible versions. For example, an ad received on a mobile device by a user

could cause the nearest stores selling the product to be displayed. So the owner of the mobile phone could become potential buyer and in a short time the customer of a company for a product or service[8]. The major benefit of this method is reduced costs and wider coverage, but this method has its limitations because the online client can easily ignore the ad content received or the client can put these emails in a spam file[6].

Video Marketing- in online marketing, the video can be added to the site to increase the company's website traffic. Messages sent to this target audience must be relevant to meeting their needs, and therefore the video must be designed in a manner that is consistent with the perception and understanding ability of both customers and potential customers, otherwise the implementation of this initiative would be useless [9, 10].

Corporate Video- this method allows the development of joint business actions in an interactive online video mode and it is therefore useful in delivering the desired message to the target audience, having the facility of easy and cost-efficient sharing in terms of creation, such as the ability to access globally[6].

Power of Blogging- over the years, blogging has become very popular across the globe without any barrier due to the age of members of groups interested in applying this method. Blogging is therefore useful to the public because it gives it the opportunity to express its views, and this feature allows marketers to capitalize on business opportunities at minimal cost[6].

Online advertising - This is the most common technique used in e-marketing, where the marketer uses virtual space to convey and promote marketing content on web pages created exclusively to: attract the attention of Internet users; increase brand awareness and promote sales. This method involves promotional messages on your computer screen[6].

Banner Advertising - banners can be found in almost all web tools or web features, is websites, mobile sites, mobile applications, search engines, newsletters, Facebook, Twitter, YouTube etc. Digital traders are continually engaged in specific actions promoting their products or services, using various types of banners (static, text, animated, images, videos, intelligent banners) on different platforms[11].

Effective online marketing programs leverage consumer data and customer relationship management (CRM) systems. Online marketing connects organizations with qualified potential customers and takes business development to a much higher level than traditional marketing.

It also helps a company raise its brand awareness by establishing its online presence across the Internet.

Online marketing has several advantages, including:

- *Low costs*

Large audiences are reachable at a fraction of traditional advertising budgets, allowing businesses to create appealing consumer ads. Many advertising platforms also allow for scalable ads with different levels of reach that are proportioned to the advertising budget. Rather than committing a large amount of money to advertising, smaller companies can spend a small amount and still increase their reach.

- *Flexibility and convenience*

Consumers may research and purchase products and services at their leisure. Business blogs can be used to let consumers and prospects conduct their own research on the business's products as well as provide their feedback and reviews.

- *Analytics*

Efficient statistical results are facilitated without extra costs. Many advertising tools include their own analytics platforms where all data can be neatly organized and observed. This facilitates business intelligence efforts and data-driven decision making.

- *Multiple options*

Advertising tools include pay-per-click advertising, email marketing, interstitial ads and banners, social media advertising, and local search integration (like Google Maps). Digital marketing companies usually offer their services across various online advertising channels by tuning their offer to the individual client's needs.

- *Demographic targeting*

Consumers can be demographically targeted much more effectively in an online rather than an offline process. Coupled with the increased analytics potential explained above, organizations can improve their targeting over time, have a clearer understanding of their customer base, and create specific offers that are shown only to certain demographics.

The main limitation of online marketing is the lack of tangibility, which means that consumers are unable to try out, or try on items they might wish to purchase. Generous return policies are the main way to circumvent such buyer apprehension.

Online marketing has outsold traditional advertising in recent years and continues to be a high-growth industry.

IV. RESEARCH METHODS

A. Research Design

Survey research and Applied research were used and research tools were questionnaires and observation. The survey research was conducted to collect the quantitative data from 500 samples who purchased the snakehead fish products via online channels and was analyzed by using descriptive

statistics. The researchers developed some branches of online marketing to promote the snakehead fish products and recorded the store history to evaluate the efficiency of online marketing.

B. Research Process

Research process of this research has developed into 5 steps consisted of 1) to survey consumer behavior, 2) to set marketing objective, communication strategy, media, and message, 3) to do the activities following the strategy, 4) to evaluate the marketing identity, and 5) to make a conclusion. All Steps were shown in Fig. 2

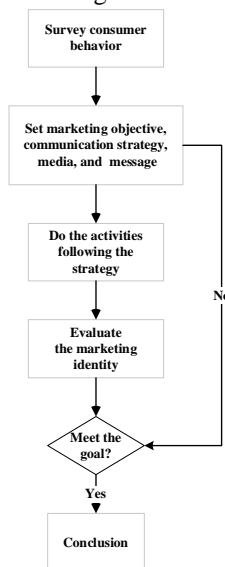


Fig.2 Research process for developing online marketing channels and marketing communications for snakehead fish products

V. RESEARCH RESULTS

Results indicated that 52.0% of the consumers were female, 41.0% born during the year 1981-1996 (or Gen Y), 60.4% graduated with a bachelor's degree, 39.8% working as employees of private companies, 30.8% have an average income 10,001-20,000 baht per month, used to buy products through Shopee (83.6%), Lazada (70.6%) and Facebook (57.6%) with a frequency of 1-2 times per month (35.2%). The purchase value is 300 – 500 baht per time (24.2%). The main reason to buy is to eat by yourself (70.8%), and making a purchase decision by yourself (55.4%).

For marketing mix factors affecting the decision for purchasing the snakehead fish products, Product is the most important. Place, Promotion, and Price are less important, respectively.

About the guidelines for developing snakehead fish products, the consumers are highly interested in new products such as crispy baked snakehead fish, snakehead fish furikake (a dry

Japanese style condiment to be sprinkled on top of cooked rice), and shredded snakehead fish which are ready-to-eat products and has a relatively long shelf life. And the consumers are interested in the main processed products of the cooperative that are sun-dried snakehead fish, NA-ROK fish chili paste, original roasted chili paste, and roasted chili paste with giant water bug mixture in the middle level.

The suggestions from the customer to develop the product are 1) the package should produce for one meal size or a trial size. It will make the product price easy to sell and/or try and be suitable for daily life. 2) It should be developed to be ready-to-eat products or just use only the microwave to cook or reheat which is suitable for small families or students. 3) It should offer new inventive products because there are already a lot of products in the market. Selling the similar product in the market will bring a lot of competitors.

Results from the survey make us set up the marketing policy by emphasizing on GAP standards and healthy products, communicating via Lazada, Shopee and Facebook for 3 months.

The results from online marketing implementation are 1) it can make total revenue from processed products 79,180 Baht per 3 month. Normally, the cooperative has an average sale of processed products is about 60,000 Baht per 3 month. It shows 32% increase in revenue. For the fresh fish, the cooperative has reservations more than 2 months in advance (based on the cooperative's existing capacity).

VI. DISCUSSIONS

From the results of the research can be discussed as follows:

1. According to the research results, distribution channels with the most buyers are Facebook, Shopee, and Lazada, respectively, which contradicts the Electronic Transactions Development Agency's 2019 survey. It is possible because the cooperatives are new merchants. There are a number of stores that are listed for sale on Shopee and Lazada and they already have a customer base. When searching on these platforms, it is found that these stores will be found on the first page, making the cooperative unable to compete in Shopee and Lazada. Unlike Facebook, which can buy ads that are more targeted to their customers. It can better determine the characteristics of the target customers who help the cooperative generate better sales.

2. Most of the consumers in this research were female, born in the years 1981-1996 (or Gen Y), graduated with a bachelor's degree, worked in private companies, have average income 10,001-20,000 Baht per month, which are consistent with the sample group of NattakanKongkaem [12]. The demographic data of this research were female, aged 21-25 years, worked as professional employee/company employee, the income

were 20,000 Baht or more, as well as the sample in the research of Nuntaporn Keandoungchun, Kwankamol Donkwa, and Sareeya Wichitsathian [13]. So it can be concluded that the sample in this study can represent a good demographic of online shopping.

RECOMMENDATIONS

The researcher summarizes the recommendations for improving the online marketing of cooperatives as follows:

1. The cooperative needs to improve the factory and production processes to meet FDA standards, which will increase the credibility of selling products.
2. It should have the various packing sizes of products, especially for one meal consumption, which is consistent with the lifestyle of consumers who live alone, inconvenient to cook.
3. It should develop innovative products that are different from general snakehead fish products and/or make value-added from fish scraps that are discarded from the production process such as fish heads, fishbones, etc.
4. Product capacity should be planned or the cooperative should find a reliable source that can provide raw materials because when the researcher needs to sell the products, it was found that the cooperative was sometimes unable to produce the products to meet the market demand. This will cause a loss of marketing opportunities because Gen Y people are the type who need speed, promptness, and not waiting for something because they can always find other vendors.
5. The cooperative should keep its standards that are its identity, for example, being a GAP standard snakehead fish, being a health-conscious product, low sodium, etc.

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Health Information Behaviour of Local Women Village Health Volunteers in Coping with COVID-19 Outbreak in Chiang Mai, Thailand

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Abstract— The article aims to study the health information behaviour of local women village health volunteers in coping with the COVID-19 outbreak in Chiang Mai Province. The study employed quantitative research methods, and a questionnaire will be used as the research instrument. The sample consisted of local women village health volunteers who habituated within four subdistricts; Suthep Subdistrict, Mae Hia Subdistrict, Fa Ham Subdistrict, and Tha Sala Subdistrict located in Mueang Chiang Mai District in Chiang Mai Province. The statistics used were frequency, percentage, the mean and standard deviation for statistical description. The findings illustrate the characteristics of local women village health volunteers who require health information for knowledge dissemination to the local community on disease prevention, surveillance and control of the COVID-19 outbreak. Health information is sought from reliable sources of health information, and also, the obtained health information was used to solve problems, including selecting health information/knowledge from clearly identified sources. The problems the VHVs found between the fieldworks were low, and most local women village health volunteers had possessed their technological device(s) or equipment(s) for seeking health information/related knowledge and employed information-seeking behaviour appropriately

Keywords— Information Behaviour, Health Information, Local Women Village Health Volunteers, COVID-19

I. INTRODUCTION

The recent pandemic has a major impact on many countries in various dimensions and spread cover around the globe that demand national and local response measures suited to a particular context. The Thai case reveals the prominent local actors in dealing with the COVID-19 pandemic, especially local health workers. The so-called Village Health Volunteers (VHVs) identified by the WHO as the vital success factors of Thailand in tackling the pandemic responses from below at the early phase outbreak. For this reason, it is important in understanding the role of VHVs in participating in primary healthcare networks in a pandemic regarding prevention, surveillance and communication between networks. The questions include how communication to practice happens and which channels and obstacles the VHVs communicated to

the local community? In addition, information access and communication channels in delivering messages from senders to recipients are also vital factors for the common understanding of implementing the measures recommended by the government at the community level. This is necessary to explore the information behaviour of the VHVs in order to investigate the information behaviour in prevention and surveillance, including how individual VHVs interact with information. This is a behaviour that connects individuals to access information sources through media as channels for disseminating knowledge. The information behaviours studied in the VHVs group focused on the relationship between information need, information seeking, and information use (Wilson, 2000). Individual needs for information use vary according to personal environment and context. As for information-seeking behaviour consistent with the principle of minimal effort, the person often searches for

the closest, convenient, and easy to get access information sources. (Borgman, 2000; Mann, 1993). Information use is the last activity related to information behaviour used to solve problems, anxiety relief, and decision-making in particular circumstances. In addition, Wilson (2000) states that individual needs lead to different information behaviours, similar to Davenport (1997) points out that information behaviour is a way of accessing information and using it. Leckie, Pettigrew & Sylvain (1996) mentions that individuals have different information needs according to their workload and occupation, and when they are aware of what information they need and results in information-seeking behaviour.

Therefore, the study of information behaviour is vital for individuals to access information, be aware of it, and get basic knowledge necessary for daily life, which is the state's duty to adopt the information behaviour for policy decision-making. Therefore, government organisations or relevant agencies should apply information behaviour in planning for information and knowledge management for their citizen basic rights. The VHVs are directly involved in implementing these measures and are closely familiar with the way of life of the local community that demands obtaining appropriate health information behaviour concerning prevention, monitor, and control the spread of COVID-19. In addition to health personals, local government organisations also play a prominent role in the screening and enforcing measures according to the principle of epidemiology, especially at the local community level. VHVs are the closest entity to the community and expected to implement these preventive measures, which is an important mechanism in continually driving community healthcare. Thus, it can be said that the VHVs mainly situated at the forefront in the local community in preventing the spread of COVID-19.

II. RESEARCH OBJECTIVES

This paper questions what is the characteristics of the health information behaviour of local women VHVs in prevention, surveillance, and control of the spread of COVID-19 in Chiang Mai, Thailand?

III. LITERATURE REVIEW

Leckie, Pettigrew & Sylvain (1996) views that individuals have different information need according to workload and occupation and information behaviour will happen when they are aware of what information they need. Davenport (1997) argues that information-seeking behaviour is a way of access information and use that information. Wilson (2000, p. 50) provides an interesting note that information behaviour is the behaviour that connects individuals to access information sources by using various media as a channel for disseminating

information, which includes the information seeking, use and transmission. Wilson believes that individual needs lead to different information behaviours, and that need may not always lead to information seeking because they may face obstacles that make it impossible to find information that meets the needs. In this regard, Spink and Cole (2004) view that information behaviour related to information in various fields such as information seeking, searching, organising and use that information. The information behaviour that occurs varies on the individual context, such as educational and professional needs leading to the information seeking process. Aree Chuenwattana (2002) stated that information behaviour is the individual behaviour to express themselves in obtaining information from various sources. This includes information-seeking behaviour and information use behaviour.

IV. RESEARCH METHODS

Scope

This study focuses on health information behaviours for prevention, surveillance, and control of the spread of COVID-19 in Chiang Mai province. The study population covers 646 women village health volunteers situated in 4 subdistricts; Suthep Subdistrict Mae Hia Subdistrict, Fa Ham Subdistrict and Tha Sala Subdistrict in Mueang Chiang Mai district (Public Health Information System, Public Health Support Division, 2019). The study period was starting from January 15, 2020, to February 15, 2021.

Data Collection and Samplings

This paper presents the health information behaviour of local women VHVs in the prevention, surveillance, and control of the COVID-19 in Chiang Mai. The quantitative research method employed; the samples used in the study were 250 volunteers in the Suthep sub-district, Mae Hia sub-district, Fa Ham sub-district and Tha Sala sub-district, Mueang Chiang Mai District Chiang Mai Province. A questionnaire as a research tool for data collection covered three aspects of information behaviour; information needs, information seeking, and information use include problems and obstacles in health information seeking and use. A total of 220 questionnaires received accounted for 88.00% of the total sent-out questionnaires. The analysis is based on the conceptual framework of Wilson (2000), Leckie, Pettigrew & Sylvain (1996), Pickard (2007) and related research papers.

V. RESEARCH RESULTS

This paper present the characteristics of local women VHVs' health information behaviours in coping with COVID-19 concerning prevention, surveillance, and control measures performed in Chiang Mai, as follows;

1. Health information behaviour of local women VHVs in prevention, surveillance, and control of the spread of COVID-19 in Chiang Mai consisted of three aspects; 1) health information need, 2) health information seeking, and 3) health information use. This paper will portray the top five of information behaviour described by local women VHVs to answer the research questions as follows.

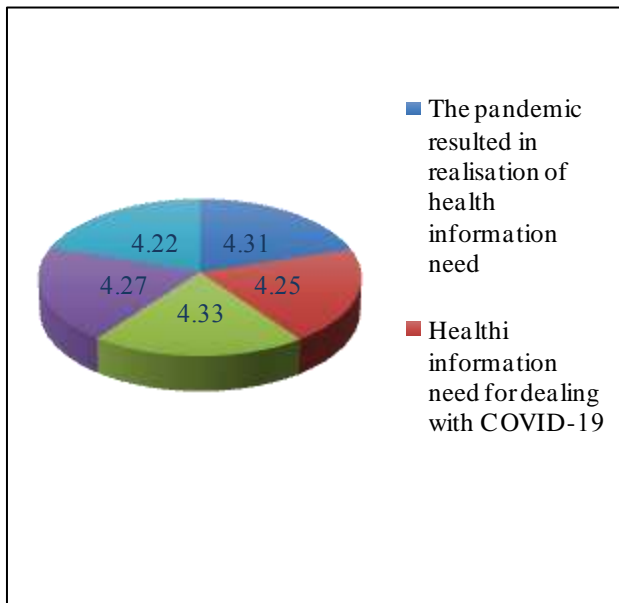


Figure 1: The mean of health information need, illustrated by local women VHVs in prevention, surveillance, and control of the spread of the COVID-19 in the community.

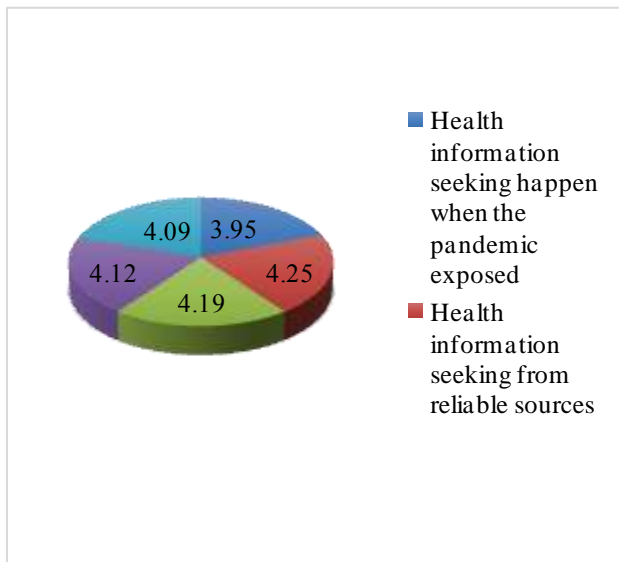


Figure 2: The mean of health information seeking, illustrated by local women VHVs in prevention, surveillance, and control of the spread of the COVID-19 in the community.

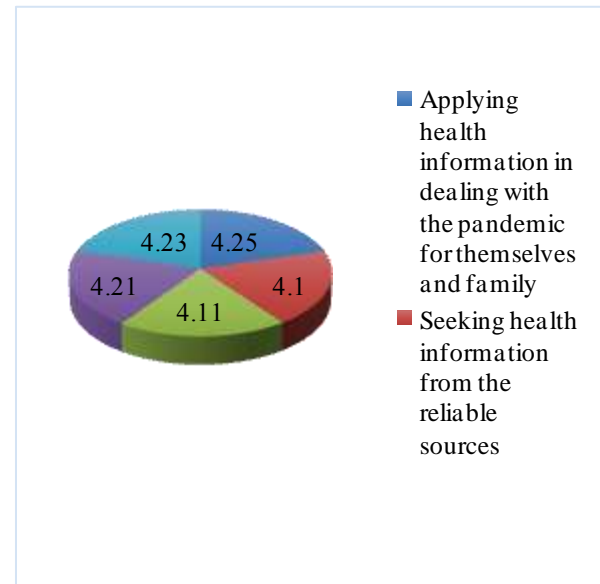


Figure 3: The mean of health information use, illustrated by local women VHVs in prevention, surveillance, and control of the spread of the COVID-19 in the community.

.2 Problems and obstacles in health information seeking and (health information) use for knowledge dissemination to communities in prevention, surveillance, and control of the spread of COVID-19 in Chiang Mai province. It consists of problems and obstacles in health information-seeking and health information use. The key survey result will be portrayed the top five of information behaviour described by local women VHVs to answer the research questions as follows:

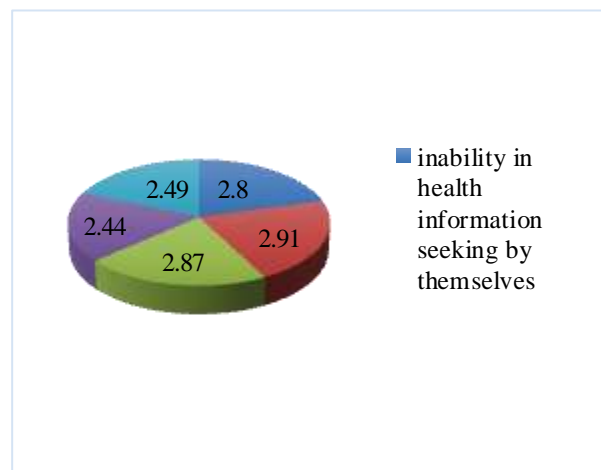


Figure 4: The mean of problems and obstacles in health information seeking, illustrated by local women VHVs in prevention, surveillance, and control of the spread of the COVID-19 in the community.

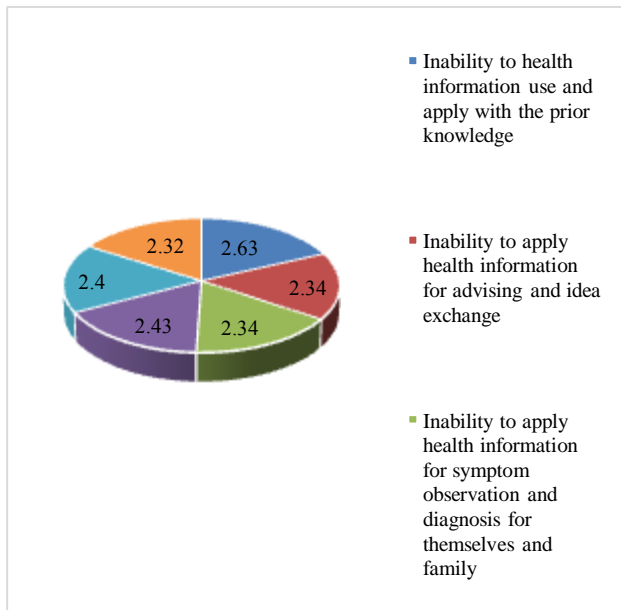


Figure :5The mean of problems and obstacles in the health information use, illustrated by local women VHVs in prevention, surveillance, and control of the spread of the COVID-19 in the community.

VI. DISCUSSIONS AND CONCLUSION

The characteristics of local women VHVs health information behaviour in prevention, surveillance, and control of the spread of COVID-19 in Chiang Mai province consists of health information need; health information seeking, health information use, include problems and obstacles in health information seeking and health information use. The key issues can be summarised and discussed as follows:

Firstly, the explosion of the pandemic resulted in the health information need of local women VHVs in prevention, surveillance and control of the spread of COVID-19 in the local community. The COVID-19 resulted in her awareness of employing up-to-date health information and knowledge in dealing with the pandemic. The results are consistent with Leckie, Pettigrew & Sylvain (1996) that people have different needs for information based on workload and occupation. Wilson (1981) states that an individual's information need arises from the social context and environment that creates the information need. Therefore, women in village health volunteers had health information needs according to their workload, occupation, and social context. This is consistent with ChontichaDinkhuntod and SmarnLoifar (2016) found that the elderly need information on medical treatment and disease prevention. In case of illness, the elderly need information on health promotion and medical treatment. It is in line with SurachatPuttima (2016), who discovered that

cycling club members in Chiang Mai province needed information related to health promotion and healthcare and disease prevention of various illnesses. This is consistent with the results of a study by JukkritWungrath, and others ((2018) found the health information need for caring for the elderly on issues related to disease and illness management, elderly well-being, including health promotion and disease prevention in the elderly.

Secondly, the explosion of the pandemic resulted in health information-seeking of local women VHVs from reliable information sources (e.g. from healthcare professionals, the Department of Disease Control, hospitals/infirmaries, public health agencies, government agencies, and related organisations). They also demand information-seeking for protection, surveillance, and control spread of COVID-19 for themselves, their family members, and the villagers. This is consistent with Pickard ((2007) states that information seeking is the ability to find information from appropriate sources. It could be verified whether or not the information we received is reliable. Similarly, Aree Chuenwattana ((2002) stated that information seeking is an activity or interaction that a person does for the purpose or to satisfy a need in a particular matter. The results of this study are consistent with JukkritWungrath and others ((2018), who discovered that the person often has information seeking from personal sources from their neighbours, patients or those who have had experience, including from public health volunteers, medical personnel, and local scholars. It is similar to PornchitaUpatum (2016), found that the most popular information sources for the elderly for accessing important information via website concerning healthcare.

Thirdly, the explosion of the pandemic resulted in the health information use of local women VHVs in prevention, surveillance, and control of the spread of COVID-19 for themselves and their family members. They can select health information from clearly identified sources (e.g. from healthcare professionals, the Department of Disease Control, other organisations and related sources, etc.) and decide whether or not reliable and accurate health information and up-to-date knowledge. The results of this study are consistent with Wilson's notion (2000) that information use is a behaviour related to collecting information for use. As for Thai scholars such as ChatchawanVongprasert (1994), notes that information use is intended to meet personal needs in their professional and operation development. This is consistent with ChontichaDinkhuntod, and SmarnLoifar's work (2016) found that the elderly mostly use the information for medical treatment and health care and promotion.

Fourthly, the explosion of the pandemic resulted in problems and obstacles of local women VHVs have to face in health

information seeking, such as the distance matter that so far from their homes or workplaces (community health centre and hospital). Access to online information sources in the health information seeking or knowledge pursuit is inconvenient, difficult, complicated, not keeping track of health information and its sources for health information seeking continuously. They tend to reluctant to discuss or exchange idea on health information or knowledge with healthcare professionals, other organisations or involved agencies (anxiety, lack of confidence). It includes unable to verify the reliability of health information self-seeking, unable to seek health information from referrals and interpersonal exchange (e.g. shy, lack of confidence), inability to seek health information on their own, and lack of skills to use technological devices in health information seeking (e.g. smartphones, iPads, tablets). Unable to purchase equipment or technological devices for knowledge and health information seeking (e.g. smartphones, iPads, tablets, etc.). This consistent with ChontichaDinkhantod and SmarnLoifar (2016), who found that the required information source was far away and did not know how to use the internet. Moreover, it is similar to JukkritWungrath and others (2018), which found that the source of information is unknown and the source cannot be accessed.

As for problems and obstacles in health information seeking are at a low level; they lack the equipment or technological devices in knowledge or health information seeking (e.g., smartphones, iPADS, Tablet, etc.) and do not know where to get this health information. However, the results confirmed that most VHV's have the technological devices used for knowledge or health information seeking and can pursue appropriate health information.

Finally, the explosion of the pandemic resulted in problems and obstacles of local women VHV's have to face in health information use regarding lack of participation in group activities, so they cannot use information or health knowledge to carry out community activities or have little involvement with the community). After receiving health information or knowledge, some cannot discuss, advise, and exchange between individuals (shy, lack of confidence, etc.). Also, they fail to utilise health information or knowledge for observing and investigating the symptoms of patients infected with COVID-19 to family members because they lack confidence or reluctance to use health information for prevention, surveillance, and control of the spread of COVID-19. Therefore, they cannot utilise health information or knowledge to determine and observe the symptoms of patients infected with COVID-19 for individuals in the community. This is similar to JukkritWungrath, and others (2018) found

that the information received could not be interpreted correctly.

The problems and obstacles in health information use are at the medium level: the newly acquired health information or knowledge cannot be applied with the prior knowledge to enhancing how to dealing with the COVID-19. In sum, some of the local women VHV's had faced problems in adopting the newly acquired health knowledge with the prior knowledge to enhance the knowledge of the COVID-19. However, local women VHV's had few problems and obstacles in using health information for coping with the pandemic. Thus, this study confirmed that local women VHV's could use the acquired health knowledge to properly pass on to the community in prevention, surveillance, and control of the spread of COVID-19 in Chiang Mai province.

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The effects of green human resource management, green organizational culture and green service innovation on environmental performance

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Abstract— The issue of environmental challenges is creating the need for business to adopt green human resource management (GHRM) practices and activities with environment management. GHRM has the capacity to enhances green culture and green service innovations in the organization lead to achieving environmental performance and business sustainable. The aim of this study is to test the relationship of green human resource management, green organizational culture, green service innovation and environmental performance. Data were collected from 375 hotels in Thailand for testing. The path modelling is performed using structural equation modeling (SEM). The results reveal that green human resource management has a significant and positive effect on green organizational culture. Green human resource management and green service innovation can have a significant and positive effect on environmental performance. Green organizational culture has a significant and positive effect on green service innovation. Furthermore, this study verifies green service innovation mediates the positive relationship between green organizational culture and environmental performance. Through findings this study green human resource management practices that contribute to green organizational culture and that predict to achieve green service innovation in the organization

Keywords— Green human resource management, Green organizational culture, Green service innovation, Environmental performance

I. INTRODUCTION

The topic of green human resource management (GHRM) has attracted considerable attention during this last decade [1]. Sustainability environmental, social, and economic performance is today considered a key responsibility that firm have toward society, particularly in activities directed at protecting the environment [2,3]. The adoption of GHRM practices has an impact to improved firm performance [4]. GHRM practice activities such as green recruitment and selection, green training and development, green performance management, green pay and reward [5,6,7,8]. Firms are more willing to adopt green human resource management as a critical strategy for implementing green practices that enhance environmental performance and achieve sustainable development [9,10,11]. [12] found that GHRM practices support the green organizational culture, and that green

organizational culture is positively mediate the relationship between GHRM practices and environmental performance.

In recent years [13] found that green organizational culture positively effects on green innovation and competitive advantage. Green innovation is defined as innovations in product innovation or process innovation, that impact on environmental management [14]. Environmental problems and natural resources imbalances are changing organizations environmental management. The current companies should concern operations to include environmental management activities those innovative and sustainable to create innovations and environmental performance [15]. The HR function can help the diver of environmental sustainable development, green innovative practices can raise resource productivity efficiently and decrease pollution effectively. Green innovation has been an important green strategy of firms in the environmental era [16,17].

The goal of research is to fill these knowledge gaps the effect of various green human resource management, green

organizational culture and green service innovation on environmental performance. The purpose of the study is developing a research model showing how GHRM and green organizational culture affects the environmental performance through green service innovation. The objectives of this research are threefold: First, GHRM positively influences green organizational culture, second GHRM and green organizational culture leads to green service innovation, which enhances the hotel environmental performance and finally GHRM and green organizational culture positively influences hotel environmental performance

The next sections of this article outline the literature review, research methods, results, discussion and conclusions and finally recommendations.

II. LITERATURE REVIEW

A. Green human resource management (GHRM)

GHRM refers to Strategic HRM practices in creating and involves implementing environmental business strategies to promote environmental sustainability in the organization [8,18,19]. GHRM using perspectives from balance between Human Resource Management policies, systems, practices and activities with environmental management [20]. GHRM practice activities such as green recruitment and selection, green training and development, green performance management, green pay and reward to the overall organizational green management mission and objectives. [5,6,7,8,21].

Green HRM and green organizational culture

Human resource management should create green organizational culture because it critical resource of the values, beliefs, and behaviors of employees through the processes of hiring, training, appraisal, and incentive systems [22]. GHRM involves the systemic, planned alignment of typical Human Resource Management Practices effectively to successfully achieve with the organizations environmental goals through favorable employee attitudes and behaviors. GHRM practices can help in promoting environment management and tool for implementation of the environmental management in the organization [19,20]. Green culture provides the sharing of green values all employees to involved through leading the organizational green management and sustainability. The environmental awareness issue has implications for the HR function to integrated environmental management and practices into HRM activities [23]. Furthermore, [12] found that GHRM practices support the green organizational culture, and that green organizational culture is positively mediate the relationship between GHRM practices and environmental

performance. A green organizational culture can therefore be defined as the value, beliefs, and behaviors of organizational employees concerning the natural environment [12].

Hypothesis 1. GHRM has a positive effect on green organizational culture.

Green HRM and green service innovation

Green innovation is defined as innovations in products or processes, that reduce the environmental impacts of all firm business activities that save energy, prevent pollution, waste recycling to impact on environmental management. Furthermore, green innovation increase firms enhance competitive advantage. [14]. Environmental challenges led to the initiation changing contemporary organizations management. The current society mostly concern with the consumption and efficient management of natural resources have the capacity to create innovations and beneficial outcomes for the environment and society [15]. The HR function can become the diver of environmental sustainable development, green innovative practices can raise resource productivity efficiently and decrease pollution effectively. Green innovation has become one of the most important green strategies in firms under the environmental era [16,17]. As firms adopt to encourage product, process, design, and technology innovation to create strategies for society that will enable operational activities on the natural environment to human future. GHRM provide an opportunity for assess efforts, initiatives and improvements concerning the natural environment for sustainable growth of business [17]. Some researchers [24,25]. suggest that HRM performance relationship the green innovation and firm environmental performance.

Hypothesis 2. GHRM has a positive effect on green service innovation.

Green HRM and environmental performance

Green human resource management practices offer an essential practical way for organizations to develop human capital that can enhance the environmental objectives through the recruitment, training, appraisal, and incentive system of an environmentally conscious workforce performance and sustainable development of the firm [8,26]. Several past studies suggest that green human resource management has a significant positive impact on environment performance [8,27,28].

Hypothesis 3. GHRM has a positive effect on environmental performance.

B. Green organizational culture

Green human resources management practices require a culture based on the corporate ecological thinking, these

investments in environmental practices are expected to affect environmental impact of organizations and enhance their performance [29,30]. The culture of an organization is perceived, value, beliefs, behavior and attitude of organizational employee harmful operational activities on the natural environment problems [12,31,32,33].

Green organizational culture and green service innovation

Green organizational culture can enhance the potential implications of green innovation because the value of green innovation activities. Green organizational culture helps organizational employees perceived green practices and achieving of green innovation performance [34]. Several authors have attempted to revealed that a positive relationship with green organizational culture and green innovation [13,35,36].

Hypothesis 4. Green organizational culture has a positive effect on green service innovation.

Green organizational culture and environmental performance

Green human resource management enhances to improve environmental performance become a cultural value activity commitment regarding green practices and supported by all organizational employees in the quest to achieve environmental performance goals [19,37,38,39]. Furthermore, there are positive green organization culture influences on the environmental performance [33,38].

Hypothesis 5. Green organizational culture has a positive effect on environmental performance.

C. Green service innovation

Innovation is seen as an important tool for businesses to increase their market shares and enabling competitive advantage, economic development in the long run. A successful innovation of new product or process development that improve the market position to attracts the customers and enable competitive advantage [39,40,41]. The development of green innovation activities has become necessary for companies to adopt to change managerial mindsets and strategies in business model transform environmental management to lead low impact of ecological [42,43]. Green service innovation is certainly a hot issue in terms of environmental management. Previous study found that innovation positively influences firm performance [44].

Green service innovation and environmental performance

Service innovation capability impacts the environmental performance of firms to have higher with the more innovative ideas and make meaningful contribution to achieve their business goals [14,19,25]. Furthermore, [24,25,35] suggests that Green innovation positively influences environmental

performance. [16] found that green service innovation positively influences firm performance.

Hypothesis 6. Green service innovation has a positive effect on environmental performance.

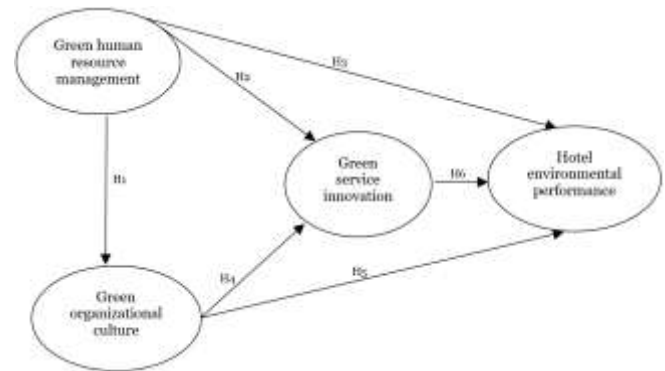


Figure 1. Research framework

III. RESEARCH METHODS

A. Sample and data collection

The data for this study are collected through an online survey which is initially sent to 912 hotels (such as HR Managers, General Manager and chooses 3 - 5 stars' hotel in Thailand). The unit of analysis in this study is business level. Finally, 393 responses are received, out of which, 18 hotels were incomplete answers; which represents an effective response rate of 41.12% (375 responses). The sample questions were presented using a five Likert scale and scores ranging from 1 (Strongly disagree) to 5 (strongly agree).

B. Measurement

Green human resource management (GHRM). The author adopted fourteen items GHRM scale from [1,2,19,23,27,47]. The sample items were "Attracting and hiring candidates with knowledge, skills, attitudes, and behaviors that conforms to environmental management;" "Including environmental criteria in the recruitment process;" "Our company has integrated training to create the emotional involvement of employees in environment management;" "We use green performance indicators in our performance management system and appraisals;" and "Our company relates employees' workplace green behaviors to reward and compensation;"

Green organizational culture (GOC). The author adopted six items GOC scale from [1,19,47]. The sample items were "Our company offered practices for employees to participate in green suggestion schemes;" "Our company has environment-oriented policies in management and specific environmental tasks;" and "Our company has a clear

developmental vision, mission, and value to guide the employees' actions in the environmental management."

Green service innovation (GSI). The author adopted nine items GSI scale from [46,48]. The sample items were "Our company has frequently offered new practices in selling products/services for the environment;" "Our company has frequently offered new practices in developing new product/service for the environment;" and "Our company has frequently innovated extends products/services based on its concern for the environment."

Hotel environment performance (HEP). The author adopted eight items HEP scale from [24,27,28,39]. The sample items were "Our company reduced overall costs;" "Our company reduced waste within the entire value chain process;" "Our company reduced environmental impact by establishing partnerships;" and "Improved its position in the marketplace."

Table 1. Convergent validity results.

Constructs	Variable	Factor loading	Cronbach's α	CR	AVE
Green human resource management	GHRM1	0.783	0.923	0.770	0.565
	GHRM2	0.793			
	GHRM3	0.828			
	GHRM4	0.844			
Green organizational culture	GOC1	0.832	0.980	0.863	0.560
	GOC2	0.889			
	GOC3	0.779			
	GOC4	0.746			
	GOC5	0.630			
	GOC6	0.704			
Green service innovation	GSI1	0.802	0.912	0.835	0.717
	GSI2	0.693			
Hotel environmental performance	HEP1	0.771	0.874	0.738	0.587
	HEP2	0.706			
	HEP3	0.691			

Table 2. Structural model goodness of fit indices.

Fit index	Value	Critical acceptable value	Acceptability
Chi ² /df	5.56	Chi ² /df < 6	Yes
RMSEA (root mean square error of approximation)	0.042	0.05-0.08	Yes
NFI (normed fit index)	0.953	> 0.9	Yes
CFI (comparative fit index)	0.960	> 0.9	Yes
GFI (goodness of fit index)	0.949	> 0.9	Yes
SRMR (standardized root mean square residual)	0.046	< 0.05	Yes

IV. RESULTS

Confirmatory factor analysis and structural equation modeling were employed to verify the hypotheses of the research framework.

A. Results of the measurement model

Table 1 shows a summary of the reliability analysis results. The Cronbach alpha was used to test the reliability of the model in this study and it ranges from 0.874 to 0.923. The Cronbach alpha values were higher than 0.7 for all constructs, indicating adequate reliability and consistency in the data. All factor loadings are greater than 0.6, and was higher than the standard value suggested by [49]. The values of CR were 0.770, 0.863, 0.835 and 0.738, all were higher than 0.7, respectively. [50] suggests that AVE value larger than 0.5 to

indicate that the latent variable has convergent validity. The AVEs and construct reliability values, showing that AVEs of the four constructs were 0.565, 0.560, 0.717 and 0.587, respectively. AVE for each scale is more than 0.5, confirming that all measures had convergent validity. The convergent validity of all constructs was assessed through suggests the acceptability. The scores indicated adequate reliability and validity. The goodness of fit indices of the structural model are shown in Table 2. All values are acceptable value, and this model passed the test.

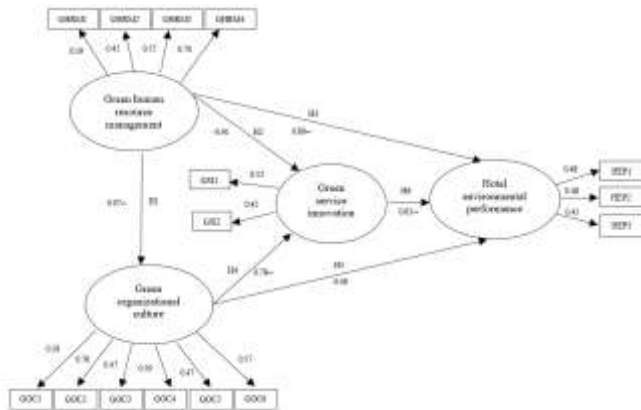
B. Structural model results

Table 3 lists the effects of factors based on the structural equation modeling example. Table 4 lists the results of structural model, and Figure 2 illustrates the results of the complete model in this study. The overall fit measures of the full model in structural equation modeling, as displayed in Figure 2, the fit of the model is acceptable (GFI = 0.949, RMSEA = 0.042, NFI = 0.953, and CFI = 0.960). According to the results presented in Table 4 and Figure 2, two Part coefficient estimates (H2 and H5) is not statistically significant. Consequently, H1, H3, H4 and H6 were supported, as presented in Table 4. Thus, the green service innovation completely mediates the relationship between the green organizational culture and hotel environmental performance. According to these findings, companies should increase their green service innovation to enhance their environmental performance.

Table 3. Effects of factors based on the structural equation modeling example

Path	Effect	Coefficients	t-value
H1: GHRM → GOC			
Direct effect	0.97		21.48**
Indirect effect	--		--
Total effect	0.97		21.48**
H2: GHRM → GSI			
Direct effect	-0.91		-39.96
Indirect effect	1.59		20.87**
Total effect	0.68		5.20**
H3: GHRM → HEP			
Direct effect	0.80		15.51**
Indirect effect	-0.02		-0.31
Total effect	0.77		7.77**
H4: GOC → GSI			
Direct effect	0.78		55.05**
Indirect effect	--		--
Total effect	0.78		55.05**
H5: GOC → HEP			
Direct effect	-0.46		-8.92
Indirect effect	1.69		11.56**
Total effect	1.23		7.93**
H6: GSI → HEP			
Direct effect	0.60		11.81**
Indirect effect	--		--
Total effect	0.60		11.81**

Note: * $p < .01$.



GFI=0.94, RMSE=0.042, NFI=0.953, CFI=0.960
 Note: * $p < 0.05$.; ** $p < .01$.

Figure 2. The results of the full model

Table 4. The results of the structural model.

Hypothesis	Proposed effect	Path coefficient	Results
H1	+	0.970**	H1 is supported
H2	-	-0.912	H2 is not supported
H3	+	0.802**	H3 is supported
H4	+	0.784**	H4 is supported
H5	-	-0.460	H5 is not supported
H6	+	0.609**	H6 is supported

Note: ** $p < .01$.

V. DISCUSSIONS AND CONCLUSIONS

This study investigated interplay of green human resource management, green organizational culture and green service innovation on environmental performance. The research results supported the hypotheses model by the generated findings of the study and previous studies of GHRM to impact green organizational culture [12] GHRM affects environmental performance [12,24,39] green organizational culture affects green service innovation [13] and green service innovation affects environmental performance [24,25]. Furthermore, this study verifies green service innovation mediates the positive relationship between green organizational culture and environmental performance. Through findings this study green human resource management practices that contribute to green organizational culture and that predict to achieve green service innovation in the organization.

VI. RECOMMENDATIONS

A. Practices Theoretical implications

The results of this study have three main implications to advance theory, First, the study contributes to HRM theory, the empirically tested GHRM influences the green organizational culture. The findings found that GHRM positively influences the green organizational culture, the

findings suggest that the firm can enhance green organizational culture related to the GHRM adopting. Human Resource Management (HRM) practices and organizational culture is key to successful organizational development. [51]. The purpose of green human resource management practice measures is to train employees to develop the level of abilities, skills and green knowledge and motivate them to use those skills and abilities with organizational goals. These training and incentives control by top managers of the organization will finally become part of the culture of the organization [52].

Second, the study found that green organizational culture positively affects green service innovation and promote environmental performance. Results of this study contributions to organizational culture theory. Previous studies indicate that green organizational culture has a positive effect on green innovation and competitive advantage [13]. The organizational culture theory can explain that green service innovation and environmental performance. Results of this study that green service innovation mediated the link between green organizational culture and environmental performance. [12] found that green organizational culture positively mediates the relationship between GHRM practices and environment performance. Green organizational culture is the main determinant for green organization and competitive advantage. In addition, green innovation acted as a full mediator of the effects of green organizational culture on competitive advantage. Especially, green organizational culture predicted green innovation, which in turn predicted competitive advantage [13].

Third, this study significantly theory and suggests that green human resource management practices that contribute to green organizational culture and that predict to achieve green service innovation in the organization.

B. Research Practical implications

First, the finding suggests that investing in GHRM is an important to enhance green organizational culture. The firms should provide GHRM practices, such as recruitment and selection, training and development, performance appraisal and reward system, which can enhance the green organizational culture. Therefore, firms should adopt GHRM to promoting environment management. GHRM should create green organizational culture to involves employee attitudes and behaviors leading the organizational green management.

Second, the finding indicate that green organizational culture positively and significantly affect environmental performance through green service innovation. Green organizational culture enhances to increase the capability of green service

innovation activity, which important to achieve environmental performance goals. Green organizational culture should develop environmental practice to enhance implications of green service innovation. Therefore, the study offers numerous practical implications for firm and policy makes on how to attain environmental performance through green human resource management, green organizational culture and green service innovation.

C. Research limitations and further research directions

Future research can study other context industries. Second, the present research found that green human resource management can positively affect green organizational culture and contributes to achieve green service innovation in the organization. In the future researches, it is recommended green organizational culture to mediator between green human resource management and green service innovation.

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An Enhancement of Community Product: A case study of single sun-dried Snake-head Fish

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Abstract— The research on An Enhancement of Community Product: A case study of single sun-dried snake-head Fish aims to upgrade a single sun-dried snake-head fish product of the Ang Thong Fisheries and Processing Cooperative Group, Huai Kan Lan Subdistrict, Wiset Chai Chan District, Ang Thong Province, Thailand. The purpose of this research was to raise the level of the single sun-dried snake-head fish product to meet the community product standard and add value to the snake-head fish. The result of the research was that single sun-dried snake-head fish product with a standardized production, branded, labeled, and standardized packaging, with a moisture content according to the community product standard for single sun-dried snake-head fish (THAI COMMUNITY PRODUCT STANDARD. 298/2549.), and can increase the value of the single sun-dried snake-head fish product. At present, the single sun-dried snake-head fish costs 250 baht per kilogram. The cost of producing the original single sun-dried snake-head fish, as usual, was averaged at 217.70 baht per kilogram. Therefore, the profit was about 32.30 baht per kilogram. However, if it was upgraded with a dryer and had packaging that was hygienic and can be stored for longer than before, more beautiful colors, it can be sold for around 350 baht per kilogram. The cost increased by 228.05 baht per kilogram. Therefore, profits were about 121.95 baht per kilogram, or if selling single sun-dried snake-head fish processed with a dryer and with hygienic packaging, it can increase the profit more than selling traditional single sun-dried snake-head fish at an average of 89.65 baht per kilogram. The aim of 1% processing from 1.5 million kilograms of fresh fish (whole group fish) can be processed 15,000 kilograms and could increase the profit from the sale of single sun-dried snake-head fish with the correct packaging more hygienic than the traditional single sun-dried snake-head fish sales of 1,344,750 baht. Therefore, research funding was 656,500 baht. The break-even point for producing dehydrated single sun-dried snake-head fish with hygienic packaging was 7,323 kilograms. The payback period was approximately 179 days, so the investment can be returned.

Keywords— Enhancement, single sun-dried, snake-head Fish, Thailand

I. INTRODUCTION

At present, Ang Thong Fisheries and Processing Cooperative Group, Huai Khan Lan Subdistrict, Wiset Chai Chan District, Ang Thong Province has an annual output of about 1,500,000 kilograms of snake-head fish per year. From the current situation of snake-head fish farming, it was found that the group would face problems in the farming system and faced the problem of falling prices that there was no middleman to buy the snake-head fish of the farmers, resulting in the farmers suffering a loss. This was because the middlemen went out to buy snake-head fish from abroad that was 3 times cheaper than farmers and related government agencies came out to find a solution for the survival of snake-head fish farmers.

At present, the group made strikers by drying in the sun, but the quality control was inconsistent due to weather conditions, sunlight, dirt and flies contamination, resulting in inconsistent quality products. Storage and extending life were uncertain.

Sometimes single sun-dried fish had a bad smell because it was not thoroughly dry. The top was dry, but the underside was not dry. Turning around was difficult, time-consuming, and labor-intensive. In addition, the production of single sun-dried fish that relied on general natural drying was often encountered with handling problems when inclement weather such as rain or problems with various insect-borne diseases that can cause contamination in products and cause future problems to the health of consumers. To solve the problem, the research team had an idea to raise the level of single sun-dried snake-head fish to meet the community product standard (THAI COMMUNITY PRODUCT STANDARD. 298/2549) to add the value of snake-head fish to meet the needs of consumers and raise the level of single sun-dried snake-head fish products to increase the community's income.

II. RESEARCH OBJECTIVES

To raise the level of snake-head fish products to meet the community product standard (THAI COMMUNITY

PRODUCT STANDARD. 298/2549) and add value to single sun-dried snake-head fish.

III. LITERATURE REVIEW

Dehydration refers to the removal of water from the desired product using heat that comes from sources such as the use of microwave heat. [1] The microwave system was used to remove water from sardines using a 500W microwave, or it was the development of a dryer that combines multiple dehydration energy. According to the research of [2], there were 3 types of experiments: 1) Natural sunlight drying of snake-head fish had 60% moisture content of snake-head fish. 2) Sun-dried snake-head fish with a solar incubator, the moisture content of snake-head fish was 49%. 3) Sun-dried snake-head fish with solar aquariums together with electricity had 34% moisture in the snake-head fish meat. All three methods were compliant with the community product standards for single sun-dried snake-head fish (TCPS. 298/2549) that single sun-dried snake-head fish products had a water activity value not more than 0.85, or commonly used and easy to find, the humidity did not exceed 65%. Water activity is an important value that can predict or determine the period of product storage.

Dehumidification in snake-head fish meat was, therefore, an important issue in extending the life of snake-head fish meat, but at present, there were several methods of dehumidification that were suitable for Ang Thong fishery and processing cooperatives with many elderly groups. The ideal method was to dehumidify with a heat pump drying system because the temperature can be easily controlled and the operating system was simple. According to the research of [3], the heat pump drying system was used to dehumidify fruits and vegetables, which can reduce humidity effectively. This was consistent with research from [4-6] that the heat pump drying system was used to dehumidify food because the use of heat pump drying system was to slowly reduce the humidity and make the color of the food more beautiful and appetizing.

The heat pump drying system had a working principle similar to that of an air conditioner. In air conditioners, cooling was used, but heat pump drying was an application that took advantage of heat to allow heat to remove moisture in the food and to get the cool back. Therefore, heat pump drying was community-appropriate technology, was easy to use, and easy to maintain. Based on the research [7] that developed a heat pump drying system using R134A refrigerant, a refrigerant used in air conditioners in Thailand which was suitable for use in communities that do not require high technology. The heat pump drying system was also a development suitable for use in food dehumidification, according to a study of [8] that used a heat pump drying system to dehumidify, which can reduce

the average steam volume by approximately 5.2 kg/hour. This was consistent with research [9] that introduced a heat pump drying system by designing a 3-stage experiment at 40, 50, 60 °C, effectively and achieving the desired product color. This was in line with research from [10] using heat pump drying to dehumidify mushrooms. Research showed that it can reduce mushroom weight. Fresh mushroom from 90kg weight can be reduced to 75.2kg in 670 minutes. Therefore, the use of the heat pump drying system for dehumidification in single sun-dried snake-head fish was a technology suitable for raising and increasing the value of single sun-dried snake-head fish.

In Thailand, there were continuous product upgrades, for example, One Tambon One Product (OTOP), which can increase the level and increase income within the community. The research of [11] had upgraded fresh cherry tomatoes and dehydrated cherry tomatoes to be of higher quality, outstanding products of Nakhon Pathom Province, and able to be exported abroad. This was in line with the research of [12] which was raising local food in Buriram province to increase value, strengthening the community, making use of free time, and increasing income for the community. In addition, products available in the popular market had been upgraded to be more quality, according to the research of [13] that developed the quality of the famous souvenirs of pork cabbage in Chiang Mai Province through the standard of oil used to fry the pork rind, etc. Therefore, raising the level of single sun-dried snake-head fish as folk wisdom for preserving food so that food can be kept for several days was a matter that should promote and support the production of single sun-dried snake-head fish to meet the quality standards to increase the income of the community.

IV. RESEARCH METHODS

An Enhancement of Community Product: A case study of single sun-dried snake-head Fish was standardized and value-added of single sun-dried snake-head fish. In this research, the research steps were as follows

1. Study the preliminary data of Ang thong Fishery Cooperative Group in terms of processing quantity of single sun-dried snake-head fish, current weathering conditions, sun drying equipment, and current single sun-dried snake-head fish products.
2. Study the need for raising the level of the group to bring the demand to develop a standardized and value-added single sun-dried snake-head fish product.
3. Develop a production process to ensure hygienic and standardized single sun-dried snake-head fish.
4. Study the moisture content between the naturally single sun-dried snake-head fish and the developed single sun-dried

snake-head fish that had been developed to meet the standard, develop the brand, label, and packaging to meet the community product standard for single sun-dried snake-head fish (TCPS. 298/2549).

5. Summarize the results of the elevation of single sun-dried snake-head fish both in terms of product upgrading and product value enhancement.

V. RESEARCH RESULTS

The research on An Enhancement of Community Product: A case study of single sun-dried snake-head Fish can be summarized as follows:

1. The preliminary study results of Ang Thong Fisheries and Processing Cooperatives in terms of processing quantity, the time required, ease of use, and single sun-dried in current sunlight. From the above data collection, the production amount of snake-head fish was approximately 1,500,000 kilograms per year and can be processed about 1% or approximately 15,000 kilograms per year. Processing using making single sun-dried snake-head fish at present, snakehead fish was naturally dried using solar energy. It was applied to dry naturally by using a net in a cage built to prevent insects as shown in Figure 1.



Figure 1 the current location of single sun-dried snake-head fish and the current product before upgrading.

From Figure 1, it was found that in the current sun drying, the temperature in the sun can not be controlled, resulting in the drying time and the moisture content in the single sun-dried snake-head fish inconsistent and affecting the storage time. The humidity required for making single sun-dried snake-head fish was approximately 65%. At present, the group had used the experience to estimate the time of the sun exposure, resulting in different humidity for each time of the sun exposure.

2. The Ang thong Fisheries and Processing Cooperative Group needed processing to meet the GMP principles and meet the community product standard for single sun-dried snake-head fish (TCPS.298/2549), and can produce single sun-dried snake-head fish every time because the single sun-dried snake-head fish product can be produced relying on sunlight and producing only in the sun. According to the preliminary survey, the Ang Thong Fisheries and Processing

Cooperative Group had a gas-powered dryer, but it was not used due to difficulty and had to watch and open the top and bottom lids according to different temperatures, making it inconvenient to use, difficult to use, and use as most of them were elderly villagers who were inconvenient to work. From collecting the data from the literature review and combining it with the needs of the said Ang Thong Fisheries and Processing Cooperatives Group, the researcher was used as the basis for the research and can be used as preliminary information, which can be summarized as follows.

1. The Ang Thong Fisheries and Processing Cooperative Group wanted to process it to meet the GMP primary and meet the community product standard for single sun-dried snake-head fish (TCPS. 298/2549).
2. Ang Thong Fisheries and Processing Cooperatives Group wants to work without sunlight.
3. Ang Thong Fisheries and Processing Cooperative Group needed tools that could be used and used by all genders and ages.
4. The Ang Thong Fisheries Cooperative and Processing Group needed a dryer that can be processed in bulk, approximately 50 kilograms per time.
5. The Ang Thong Fisheries and Processing Cooperative Group needed a dryer that was easy and harmless.

From the preliminary data, the researcher had summarized the requirement that the single sun-dried snake-head fish should be used as heat pump drying to use electricity in the community. The material to be used must be food grade, with simple buttons, easy to use, programmable timer, and can put 50 kilograms of fish at a time (fresh fish with only meat leftovers).

3. From the information on the preliminary requirements for upgrading the processing of single sun-dried snake-head fish to meet the GMP primary and meet the community product standard as well as add value, the researcher with the Ang Thong Fisheries and Processing Cooperative Group agreed Initially was to develop a dryer to be able to dry single sun-dried snake-head fish by GMP standards. The single-strand dryer used a heat pump system with a capacity of 50 kilograms per cycle by using a heat pump system that can control temperature and time. The design process was a heating system in the middle of the dryer and hot air flows to the left and right to suit the amount of single sun-dried snake-head fish used for drying. The rack design emphasizes ease of use and hot air distribution. The rack was a food-grade stainless steel mesh basket and the rim was food-grade stainless steel so that moisture can evaporate to the top of the unit. The heat pump used was approximately 38000 BTU for heating, as shown in Figure 2.

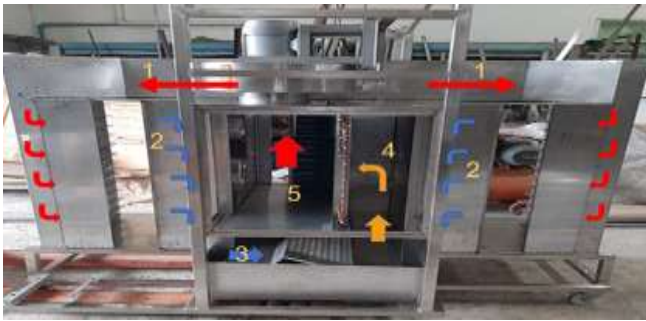


Figure 2 Design of a heat pump dryer for drying single sun-dried snake-head fish.

From Figure 2, the heat pump drying machine for drying single sun-dried snake-head fish had the following working steps:

1. The airflow in the system started from the motor power blower to distribute the hot air to the layers so that the fish get the same heat. The hot air from the pump system was distributed along the side edge of the machine and was distributed into each layer of the fish in each tray.
2. The hot air passing through the fish meat in each layer would carry moisture into the inside edge of the cabinet, the center of the machine, and down the bottom of the machine.
3. The humid hot air entered the bottom of the unit through the lower cooling coil to draw the water away from the hot air so that the hot air had reduced water vapor and passed into the outdoor unit.
4. The hot air that had been pre-circulated through the indoor unit will flow through the outdoor unit with a heat pump system to bring the hot air to the desired temperature to flow to the system. In this heat pump system, the heat was also added from the outside air by connecting another set of cooling coils so that the heat can be improved better and the cool air can be used to benefit the needs of the community. For example, if the dryer was installed in the processing room, it will be able to cool around 25-30 degrees Celsius so that the processor can use energy efficiently, which was the highlight of the machine that the researcher had developed as shown in Figure 3



Figure 3 The heat pump dryer for drying single sun-dried snake-head fish.

4. The study of the appropriate method of drying snake-head fish was a comparative study of 2 methods, namely: 1) Natural drying method using natural sunlight that temperature was about 55 degrees Celsius. 2) Drying method by using a heat pump dryer for drying snake-head fish at a temperature of 60 degrees Celsius for 6, 9, 13, 15 hours. It was found that the longer the drying time, the darker the product was from the 6 hour baking value. This drying gave the color brighter than the drying at 9, 13, 15 hours, respectively. Drying at 15 hours gave the product the darkest color. The natural sun drying method using sunlight at a temperature of approximately 55 degrees Celsius at 6, 9, 13, 15 hours was found to have the same effect as the drying with a heat pump dryer for drying fish with a single suntan. With a longer drying time, the darker color of the product was from the 6 hour drying value to the color that was brighter than the drying at 9, 13 hours, and at 15 hours the product was the darkest. By comparing the color of the products from the two baking methods, it was found that the product color obtained from the heat pump dryer for drying fish had a reddish-brown color and was more appetizing than the products from the natural sun drying method using sunlight.

The natural sun drying method using sunlight was found to have the same effect as drying with a drying oven. When it took longer to dry in the sun, the remaining moisture content decreased. Drying was at 55 degrees Celsius with the time of 6, 9, 13, 15 hours and residual moisture values of 64.05 ± 0.30 , 61.58 ± 0.64 , 53.48 ± 0.68 , and 52.42 ± 0.36 , respectively. The method of drying with a heat pump dryer for drying single sun-dried snake-head fish was found that the longer the drying time, the moisture content of the product decreased. Drying was at 60 °C, time 6, 9, 13, 15 hours with residual moisture values of 59.57 ± 0.45 , 52.38 ± 0.32 , 47.09 ± 0.30 , and 42.42 ± 0.36 , respectively. The moisture effect

was consistent with the Community Product Standard for single sun-dried snake-head fish (TCPS 298/2549), indicating that the moisture content of single sun-dried snake-head fish products must not exceed 65% by weight.

The single sun-dried snake-head fish products that used the natural sun drying method, use sunlight, the moisture would decrease rapidly in the outer skin, but the inner meat still had moisture. Single sun-dried snake-head fish had a strong color, musty, putrid smell. However, drying with a heat pump dryer for drying of single sun-dried snake-head fish can maintain the color and moisturized quality better than natural drying and the product was more consistent. This was consistent with the Community Product Standard for single sun-dried snake-head fish (TCPS 298/2549). The smell was the naturally good of single sun-dried snake-head fish and free from any unpleasant smells such as musty, foul, and spoilage. The resulting texture characteristics were firm, and not hard or soft as shown in Table 1.

Table 1 Results of comparing the moisture content of the natural sun drying method using sunlight and heat pump drying machine for drying of single sun-dried snake-head fish.

Temperature (degrees Celsius)	Time (hours)	Humidity (%)
Drying with a heat pump dryer for drying single sun-dried snake-head fish (60 ° C)	6	59.57±0.45
	9	52.38±0.32
	13	47.09±0.30
	15	42.42±0.36
Natural sun drying method used sunlight (55 ° C).	6	64.05±0.30
	9	61.58±0.64
	13	53.48±0.68
	15	52.05±0.57

Note: ± means the experimental standard deviation.

From Table 1, the researcher and Ang Thong Fisheries and Processing Cooperative Group brainstormed and summarized to select the drying of snakehead fish with a heat pump dryer for single sun-dried snake-head fish at a temperature of 60 degrees Celsius and the drying time of 6 hours with a humidity of $59.57 \pm 0.45\%$ due to the beautiful color of single sun-dried snake-head fish and the humidity passed the community product standard for single sun-dried snake-head fish (TCPS 298/2549).

Enhancement by designing suitable brands, labels, and packaging according to food standards with appropriate community participation. In the design, Ang Thong Fisheries and Processing Cooperative Group, Huai Khan Lan Subdistrict, Wiset Chai Chan District, Ang Thong Province, the community participated in the label design, which trained the label and packaging knowledge to the group and Brainstorming in groups to get labels that meet customer needs. The design was prioritized according to research by Sritong and Sritong[14] that brought customer needs to

develop products. By developing packaging after a meeting with the group, it was found that the packaging must contain details consisting of: 1) Name of food 2) Food system number 3) Name and address of the manufacturer 4) The amount of food 5) Key components 6) Date of manufacture / expiration / consumption 7) Storage methods to meet community product standards. The community had modified the colors and patterns according to the needs of the community to make them stand out. When the packaging was attached to the product, it made the product more attractive, cleaner, and more appetizing as shown in Figure 4.



Figure 4 Single sun-dried snake-head fish product available for sale

5. Enhanced results to increase the value of the snakehead product by developing a standardized and branded product, labeling, and appropriate packaging can increase the value of the single sun-dried snake-head fish. At present, the single sun-dried snake-head fish costs 250 baht per kilogram. The average cost of single sun-dried snake-head fish production was 217.70 baht per kg. Therefore, the profit was about 32.30 baht per kilogram. If it was upgraded with a dryer and had packaging that was hygienic and can be stored for longer and more beautiful colors, it can be sold for about 350 baht per kilogram. The cost will increase from 228.05 baht per kg. Therefore, profits were about 121.95 baht per kilogram, or if selling single sun-dried snake-head fish processed with a dryer and with hygienic packaging, can increase the profit more than selling traditional single sun-dried snake-head fish with an average of 89.65 baht per kilogram. With the aim of 1% processing of 1.5 million kilograms of fresh fish (the whole group of fish), 15,000 kilograms of fish can be processed, and it will be able to increase the profit from the sale of processed single dried cobra fish and standardized production and had a more hygienic packaging than the traditional sales of snakehead fish in the amount of 1,344,750 baht. Therefore, from research funding, the amount was 656,500 baht. The break-even point for producing dehydrated single sun-dried snake-head fish with hygienic packaging was 7,323 kg. The payback period was approximately 179 days,

so the investment can be returned. The data showing production costs were shown in Table 2.

Table 2 The cost of production of single sun-dried snake-head fish in the original and the improvement (depreciation type).

Sun dried cost per kilogram	Baht	Incubator cost per kilogram (depreciation type)	Baht
50 kilograms of sunfish require fresh fish at a price of 8,000 Baht (at the price of fish 100 baht per kilogram)	160	50 kilograms of Sun-dried fish require fresh fish at price of 8,000 Baht (at the price of fish 100 baht per kilogram)	160
Fish lock ice cost is 80 baht per 50 kilogram.	1.6	Fish lock ice cost is 80 baht per 50 kilogram.	1.6
Seal bag costs, approximately 150 bags per 50 kilograms, 5 baht per bag	15	Seal bag costs, approximately 150 bags per 50 kilograms, 5 baht per bag	15
Label fee, 150 pieces per 50 kilogram piece, 4.2 baht per piece	12.6	Label fee 150 pieces per 50 kg piece 4.2 baht per piece.	12.6
Labors cost for 3 persons, 300 baht per person, and can produce 50 kilograms.	18	Sauce costs 0.9 baht, sugar 1.25 baht, fish sauce 1.25 baht, salt 0.25 baht can be used to marinate fresh fish 50 kilograms.	0.07
The cost of table salt for fermentation of 50 kg of fresh fish uses 1 kilogram of table salt at 25 baht	0.5	Labor cost for 3 persons, 300 baht per person, and can produce 50 kilograms.	18
Use of sunlight energy	0	Electricity cost is 4.22 baht per unit, requiring 4 units per hour, baking for 6 hours each time, 50 kilograms.	2.03
Overhead expenses is 500 baht per 50 kilograms.	10	Machine depreciation is 437.50 baht per 50 kilograms.	8.75
Total cost per kilogram	217.7	Overhead expenses is 500 baht per 50 kilogram.	10
Selling price per kilogram	250	Total cost per kilogram	228.05
Profit per kilogram	32.3	Selling price per kilogram	350
		Profit per kilogram	121.95
		Profit increased by	89.65

Estimation of cost prices in the event of changes. Because at present, the price of fresh snake-head fish has changed seasonally between the price of 60 baht–150 baht per kilogram and the selling price can be changed to stimulate the market, organize various promotions and the price can be changed between the price of 250 baht-350 baht per kilogram. Costs and profits for the change were shown in Table 3.

Table 3 Profits from changing prices of fresh snake-head fish in the range of 60 baht–150 baht (depreciated)

Price of fresh fish (baht per kilogram)	Production cost (baht per kilogram)	Profit (baht per kilogram at a selling price of 350 baht per kilogram)	Profit (baht per kilogram at a price of 300 baht per kilogram)	Profit (baht per kilogram at the selling price 250 baht per kilogram)
60	164.05	185.95	135.95	85.95
70	180.05	169.95	119.95	69.95
80	196.05	153.95	103.95	53.95
90	212.05	137.95	87.95	37.95
100	228.05	121.95	71.95	21.95
110	244.05	105.95	55.95	5.95
120	260.05	89.95	39.95	-10.05
130	276.05	73.95	23.95	-26.05
140	292.05	57.95	7.95	-42.05
150	308.05	41.95	-8.05	-58.05

From Table 3, it was found that if selling single sun-dried snake-head fish at 350 baht per kilogram, there would be no loss, but if selling single sun snakehead fish at 300 baht per kilogram, it would start to lose when the price of fresh snake-head fish cost 150 baht per kilogram. If selling single sun-dried snake-head fish at 250 baht per kilogram, it would start to lose when the price of fresh snake-head fish cost 120 baht per kilogram.

VI. DISCUSSIONS

The research on An Enhancement of Community Product: A case study of single sun-dried snake-head Fish was an upgrade of the single sun-dried snake-head fish product of Ang Thong Fisheries and Processing Cooperative Group, Huai Kan Lan Subdistrict, Wiset Chai Chan District, Ang Thong Province. The objective of the research was to raise the level of sunfish products to meet the community product standard for single sun-dried snake-head fish (TCPS. 298/2549). The results of the study were to raise the level of the production process to the standard, to study the needs of the development group, and to improve the production process to meet the standard. The improvement and development results were the development of the natural sun drying process of snake-head fish, which was unsuitable, unhygienic, and the temperature cannot be controlled, resulting in substandard products and rapid spoilage. After brainstorming and figuring out solutions, the researcher and the group were able to find a way to improve the sun exposure by developing a heat pump dryer for drying the single sun-dried snake-head fish so that it can dry at the desired temperature and Hygienic because the dryer was made of all food-grade stainless steel and was able to develop the optimal temperature for drying single sun-dried snake-head fish at 60 °C in 6 hours. This gave the single sun-dried snake-head fish a bright color and the moisture content of the single sun-dried snake-head fish was approximately $59.57 \pm 0.45\%$.

The development of a heat pump drying machine for drying fish from the sun was the use of a heat pump drying system, a system that provided uniform heating and continuous heating. The heat pump drying system provided additional heat by allowing the moisture in the fish meat to gradually evaporate from the fish meat. The front surface of the snake-head fish would not dry out and block the evaporation of water inside. Unlike natural sun drying, this method was heated at high temperatures, drying the surface of the snake-head fish and blocking the evaporation of water in the fish meat, causing the outside but moist inside, resulting in rapid spoilage. This was consistent with research from research [7-10] that introduced heat pump drying systems to develop food dehumidification

that was suitable for use in the community because it was a simple technology and the community was easy to maintain. Most of the temperature used for baking food was about 50-60 Celsius because it will produce food that was colorful and had a standard moisture content.

Adding the value of the single sun-dried snake-head fish product by enhancing the brand, label, and packaging was to develop a branded packaging and had a correct label that complied with the food standard, which included the food name, food system number, manufacturer's name, and address, the quantity of food, key ingredients, date of manufacture/expiration / recommended consumption, and storage methods to build trust in customers. Developing a branded and labeled packaging can add value to the single sun-dried snake-head fish, increase customer confidence in consuming it, and can be stored for a longer period. This was consistent with research from [13] that had raised the quality of the well-known souvenir pork cabbage in Chiang Mai province to be higher quality and consistent with the research of [11] upgrading fresh cherry tomatoes and saffron tomatoes. It was dried to become a more quality product and was an outstanding product of Nakhon Pathom province and can be exported abroad.

VII. CONCLUSION

The research on An Enhancement of Community Product: A case study of single sun-dried snake-head Fish was an upgrade of a single sun-dried snake-head fish product of the Ang Thong Fisheries and Processing Cooperative Group, Huai Kan Lan Subdistrict, Wiset Chai Chan District, Ang Thong Province. The objective of the research was to raise the level of sunfish products to meet the community product standard for single sun-dried snake-head fish (TCPS. 298/2549). Effect of upgrading to increase the value of snake-head fish products by developing standardized and branded products, labels, and the right packaging can increase the value of snakehead fish as follows: At present, the sun dried snakehead fish costs 250 baht per kilogram. The average cost of single sun-dried snake-head fish production was 217.70 baht per kg. Therefore the profit was about 32.30 baht per kilogram. If it was upgraded with a dryer, had hygienic packaging, can be stored for longer, and was more colorful, it can be sold for around 350 baht per kilogram. The cost increased from 228.05 baht per kg. Therefore, the profit was approximately 121.95 baht per kilogram. If selling single sun-dried snake-head fish processed in a dryer and a hygienic packaging, it can increase profits more than selling traditional single sun-dried snake-head fish with an average of 89.65 baht per kilogram. By setting a goal of processing 1% from 1.5 million kilograms of fresh fish (the whole group of fish),

15,000 kilograms of fish can be processed and will be able to increase the profit from the sale of processed single sun-dried snake-head fish and standardized production and had a more hygienic packaging than the traditional sales of single sun-dried snake-head fish for 1,344,750 baht. Therefore, the research funding was 656,500 baht. The break-even point for producing dehydrated single-skinned snakehead fish with hygienic packaging was 7,323 kg. The payback period was approximately 179 days, so the investment can be returned as in Figure 5.



Figure 5 Single sun-dried snake-head fish product before and after elevation

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The development of a physical activity model to enhance learning of children with intellectual disabilities

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Abstract— The purpose of this research was to develop a physical activity (PA) model to enhance learning of children with intellectual disabilities, (ID). The subjects for this study were eight children with moderate intellectual disabilities (IQ levels 35-49, medical screening form) aged between 6-12 year old, they were selected by purposive sampling. The research instruments consisted of 1) the questionnaire and interview form, 2) observation and note-taking form of learning, 3) The PA model, and 4) Learning tests for children with ID. The PA model was applied to the experimental group for 8 weeks, 3 sessions per week, and 45 minutes per each. Inferential statistics were One-way ANOVA repeated measures used to compare learning outcome among pre-test, after 4 weeks test and post-test results in 95% confident interval.

The research results were as follows:

1. The PA model consisted of 3 stages: preparation, physical activity and cool down. There were 8 activities including jumping through colored hoop, T-agility, V-shaped stepping, 9-square, ball-dribbling, throw a ball into a box, throwing and catching a ball and shuttle runs, indicated that an index of item objective congruence was 0.94 (IOC=0.94).

2. The PA model was effective in increasing learning of children with ID. in counting, numbers comparison and matching numbers when comparing after the 4-week test and the post-test with the results of the pre-test. Learning outcomes were statistically significantly different at .05. On the other hand, in terms of matching numbers when comparing between pre-test and 4 week test was not statistically different.

Conclusion: These findings suggest that participation in PA model can improve learning outcomes of children with ID. PA model involving mild complexity and moderate intensity appear to have the greatest benefits for children with ID.

Keywords— Physical Activity Model, Learning, Children with Intellectual Disabilities

I. INTRODUCTION

The current situation of people with disabilities reflects the demographic changes of people with disabilities in terms of gender, age, education, distribution, number and type of disability. According to the situation report of people with disabilities in Thailand, it was found that the number of people with disabilities who have a national disability identification card is 1,657,438, accounting for 2.52% of the country's population and is likely to continue increasing. This will lead to economic, social and health problems [1].

Intellectual disability is one of the types of disabilities in terms of development that results in physical, social, language, emotional, functioning and intellectual limitations that are slower than the average person. Characteristics are determined based on intelligence quotient (IQ) level is lower

than the threshold and the ability to modify one's own behavior defects in two or more of the ten areas, including communication, self-care, home living, social/interpersonal skills, functional academic skills, use of community resources, self-direction, work, leisure, health and safety. [2]. The survey of the disabled found that there were 135,085 persons with intellectual disabilities. People with disabilities was in childhood and school age from birth to age 21 made up 29.96% of the total number of people with disabilities at this age and this was increasing. [3]. The number of individuals with intellectual disabilities suggested that the country must prepare to deal with children with intellectual disabilities to receive assistance in maintaining or rehabilitating physical, language, behavior, society and brain to stop the increasing number of disabilities. As a result, these children could be self-reliant and reduce the burden of dependency from family and society.

Physical activity is the movement of the body in various postures caused by the work of skeletal muscles in all parts of the body. The muscle contraction and relaxation process lead to energy metabolism, such as walking, running, jumping, gaming, sports, dancing, and exercise [4]. Physical activity can be divided into two types: 1) Physical activities in daily such as housework, travel and occupation. 2) Physical activity in leisure times such as play, exercise, and sports which are associated with health more than physical activities in daily. [5]. If adequate physical activity is performed, it will have a positive effect on all aspects of health. At the same time, lack of adequate physical activity can have negative effects on health and there is a chance of developing NCDs (Non-communicable diseases). In addition, physical activity also can develop to emotional control, good personality, stress and anxiety reducing. For this reason, physical activity is an important for a good health, quality of life and improve the well-being of people with intellectual disabilities. If they perform physical activities or learn using motor skills, it will stimulate the motor control, sensory neuron, motor neuron and the brain's memory is able to remember information precisely by doing and thinking repeatedly through a variety of motor activities [6][7]. This will stimulate brain function in children with intellectual disabilities to improve motor learning.

According to a study conducted by Inthes et al. [8], the effects of effects of sensory integration training upon learning and health related fitness, it was found that the learning mean of the experimental group was higher than the control group with statistical significantly different at the .05. In addition, with respect to a study on fundamental movement skills training to promote physical activity in children with and without disability conducted by Capio et al [9], it was found that training groups improved in fundamental movement skills whereas control groups did not statistically significantly different in weekday physical activity were found. Increased weekend moderate to vigorous physical activity was found in the experimental group. Moreover, Yamauchi et al. [10] studied motor and cognitive development of children with Down syndrome: the effect of acquisition of walking skills on their cognitive and language abilities, it was found that posture motor developmental age was significantly and positively correlated with both cognitive-adaptive and language-Social in children 1–3 years old. The relationship strengthened with increased age. Acquisition of walking skills had a statistically significant positive effect on the cognitive-adaptive and language-social at the second tests when controlling for the cognitive-adaptive and language-social at the first tests and the second tests. The results indicated that the motor development was correlated

with both cognitive and language development in young children with Down syndrome. Additionally, Dandashiet al [11] studied enhancing the cognitive and learning skills of children with intellectual disability through physical activity and edutainment games. The results showed that the system had positive effects on the children in experimental group, in terms of cognition and motivational levels, especially as the children became more physically active in the classrooms. From these research supports that physical activity an important role in promoting the learning of children with intellectual disabilities. If these children engage in physical activities individually the level of ability and interest of this group of children, they will have positive outcomes in terms of emotional mobility, playfulness, adaptability, communication, understanding the meaning of self-care, interaction with others, maintaining health and safety, and better quality of life. Skills training and basic motor development contribute to improved physical performance, mobility, and perception of children with disabilities. The teaching of active physical activity should start from simple movements to more difficult and continuous movements to achieve the most complete and accurate movement of the body. However, there is no serious study and development of physical activity models to enhance the learning for children with intellectual disabilities in schools to encourage these children to gain physical, language, behavioral, social, and brain rehabilitation to stop the growing disability. Proper and consistent physical activity can help children with intellectual disabilities improve their physical, emotional, social, mental and cognitive performance. As a result, this group of children can help themselves and live happily.

As mentioned above, the problems and the importance have shown significant demographic changes of people with disabilities in Thailand. Most of them are in childhood and adolescence, and their numbers increase. Intellectual disability is a type of person with developmental disabilities that cause physical, social, language, emotional, functioning, and intellectual limitations that are slower than the average person. In the country, children with intellectual disabilities must develop and promote to receive help in maintaining or restoring physical, language, behavioral, social, and cerebral abilities to stop the growing disability, reliance on self-efficacy, and reducing the burden of dependence on family and society. We should do this through physical activities that promote movement, mood, adaptation, and learning. The researchers saw the importance of developing a physical activity model for children with intellectual disabilities using theoretical principles related to physical activity and children with intellectual disabilities to get a physical activity model that is appropriate for the individual,

the child's ability, and interest level, leading to the development and restoration of a better quality of life. We will train these children in basic movements such as non-locomotors movement, locomotors movement, and manipulative movement and learning about primary color separation, command practice, directional movements, and numerical learning integrated into the physical activity model. In addition, personnel involved with children with intellectual disabilities can apply the physical activity model in teaching and physical activity to promote their good learning.

II. RESEARCH OBJECTIVES

The aim of this study was to develop a physical activity (PA) model to enhance learning of children with intellectual disabilities.

III. RESEARCH METHODS

Population and samples

The population is children with intellectual disabilities aged 6-12 years old who were studying at the special education bureau, Udonthani Province, the Office of Special Education Administration, the Office of the Basic Education Commission, the Ministry of Education, Thailand.

The sample for this study were 8 children with moderate intellectual disabilities (IQ level 35-49) from medical screening form aged between 6-12 year old. They were selected by purposive sampling and there was only one experimental group. This research was approved by the Thailand National Sports University Ethics board. (TNSU 167/2020).

Inclusion criteria are as follows:

1. Children with intellectual disabilities who were aged between 6-12 years and diagnosed by a doctor as having a level of moderate intelligence quotient (IQ=35-49).
2. Children with intellectual disabilities without severe complications and able to an experimental protocol.
3. Children with intellectual disabilities who have not disabilities in mobility, communication, hearing loss and vision problem.
4. Children with intellectual disabilities whose parents allow them to take part in physical activities.

Exclusion criteria are as follows:

1. Children with intellectual disabilities diagnose by medical personnel that it strictly prohibited them from exercising or physical activity.
2. Children with intellectual disabilities and congenital diseases such as heart disease, diabetes, or symptoms resulting from cerebrovascular disease.

3. Children with intellectual disabilities who are immobile or hearing and vision disabilities.

Research tools

1. The standardized questionnaire and interview form of learning outcome of children with intellectual disabilities for teachers and parents.
2. Observation and note-taking form of learning.
3. The physical activity model to enhance the learning of children with intellectual disabilities consisted of 3 major stages: the preparation stage, the physical activity stage, and the cool down stage. There were 8 interesting activities: jumping through colored hoop, T-agility, V-shaped stepping, 9-square, ball-dribbling, throw a ball into a box, throwing and catching a ball and shuttle runs, in each activities performed 45 minute, 3 sessions per weeks for 8 week, indicated that an index of item objective congruence was 0.94 (IOC=0.94).
4. The standardized learning tests for children with intellectual disabilities include counting, numbers comparison and matching numbers.

Quality of research tools

Content validity analysis was determined by using research tools such as questionnaires, interview forms, observation forms, and behavior recording forms. The researcher's physical activity model and learning tests of children with intellectual disabilities presented to five qualified experts to examine the content validity. Then the data analyzed for the Index of item Objective Congruence (IOC), which was equal to 0.94, and the suggestions received to use for further improvements.

Reliability analysis performed by using the research tool in a similar group of 8 people to determine the value using Cronbach's alpha coefficient in the rating scale questionnaire and the value was 0.85. We examined the learning tests of children with intellectual disabilities using the Kuder-Richardson tests [KR (20)] and the confidence value was 0.80. Difficulty index got by choosing a test with a difficulty between .20-.80 and discrimination value got by selecting exams with discrimination greater than .20 or higher.

Data collection

In order to obtain research data, the researcher took the following steps:

1. The researcher studied the principles, theories and content related to physical activity, principles of exercise, development, physical limitations and learning of children with intellectual disabilities.
2. The researcher collected data from questionnaires and interviews with parents, teachers, stakeholders and people

related to children with intellectual disabilities by using in-depth interviews and group interviews.

3. We require the sample group to undergo a health check-up with a medical person before participating in this research project.

4. The physical activity model to enhance learning of children with intellectual disabilities is applied to a experimental group for 8 weeks, 3 sessions per week and 45 minutes per each.

5. According to learning tests of children with intellectual disabilities, the experimental group was pre-test, after 4-week test and post-test.

6. The data obtained from the experiment are analyzed, discussion and conclusion of the results.

Data analysis

The process of data analysis in this study is as follow:

1. Content analysis and synthesis determined using the information studied on the principles, theories, and content related to physical activity, exercise principles, development, physical limitations, and learning of children with intellectual disabilities including information get from in-depth interviews and group interviews of parents, teachers, stakeholders and those related to children with intellectual disabilities.

2. Descriptive statistics were mean and standard deviation for expression characteristic of simple.

3. Shapiro-Wilk Tests is used to compare with the variables in the study including pre-test, after 4-week test and post-test.

4. One-way ANOVA repeated measures are used to analyze the difference in mean scores on learning of the experimental group obtained from the pre-test, after 4-week test, and post-test.

5. Bonferroni method is used to analyze a pairwise comparison of the mean score on learning of the experimental group obtained from the pre-test, after 4-weeks test, and post-test.

6. The alpha level of p-value less than .05 ($p < .05$) was used for determined significant for all statistical analysis.

IV. RESEARCH RESULTS

The research findings are as following:

1. The development of physical activity models to enhance learning for children with intellectual disabilities.

The physical activity model to enhance the learning of children with intellectual disabilities. The researchers developed this model based on the study, analysis, and synthesis of principles, theories, and content related to physical activity, exercise principles, development, physical and learning limitations in children with intellectual

disabilities from books, textbooks and academic journals. They analyzed and synthesized with the information get from the context, situation, condition and learning problems of children with intellectual disabilities. In addition, they developed materials and equipment used as a medium to stimulate learning behaviors of children with intellectual disabilities into a physical activity model to enhance learning of children with intellectual disabilities. There were three stages: the preparation stage, the physical activity stage and the cool down stage. There were 8 interesting activities including jumping through colored hoop, T-agility, V-shaped stepping, 9-square, ball-dribbling, throw a ball into a box, throwing and catching a ball, and shuttle runs. All of these were assessed by qualified experts to examine the quality of physical activity models to enhance learning for children with intellectual disabilities. Analysis of the Index of item objective congruence (IOC) from 0.5-1.0 found that, the physical activity model to enhance the learning of children with intellectual disabilities had an index of item objective congruence was 0.94 (IOC=0.94). The recommendations from experts were then revised. This was applied to an experimental group with similar characteristics to the sample group to determine the reliability of the physical activity model to enhance learning of children with intellectual disabilities. The IOC values showed that the physical activity model to enhance the learning of children with intellectual disabilities could be used as a physical activity model for children with intellectual disabilities.

2. The effectiveness of the physical activity model to enhance the learning of children with intellectual disabilities.

The researcher used the data from the learning outcome of the sample group to analyze and present the data as a table and detailed below.

2.1 Eight children with moderate intellectual disabilities had mean of age 9.62 year, ± 2.06 , height 109.12 cm. ± 25.04 and weight of 47.25 kg ± 10.31 .

2.2 The results of learning outcome of the experimental group by using One-way ANOVA repeated measures.

The use of One-way ANOVA repeated measures assumed that all participants were normal distribution, all the participants variances were equal, all the sample were taken independently of each other and were randomly collected from their populations.

2.2.1 Matching numbers outcome.

The results of mean score learning found that mean score learning at post-test ($\bar{x}=14.50$, S.D=4.14) was a statistically significant higher than mean score learning at pre-test ($\bar{x}=7.62$, S.D=5.57) and after 4 week test ($\bar{x}=10.62$, S.D=3.88) ($p < .05$). On the other hand, mean score learning at 4 weeks was not significantly different from pre-test ($p < .094$). (Table 1).

Table 1 Comparison of mean score learning at pre-test, after 4-week test and post-test.

Source of Variance	df	SS	MS	F	p
Exam time	2	190.083	95.042	19.214	.000
Error	14	69.250	4.946		

Mauchly's W = .412, Chi-square (2,8) = 5.327, $p = .070$
 The results of pairwise comparisons were analyzed using the Bonferroni's method
 Post-test > Pre-test ($p = .000^*$, $d = 6.87$)
 Post-test > After 4-week test ($p = .002^*$, $d = 3.857$)
 After 4-week test > Pre-test ($p = .094$, $d = 3.00$)

* $p < .05$.

2.2.2 Counting outcome

The results of mean score learning found that mean score learning at post-test ($\bar{x}=8.25$, S.D=1.28) was a statistically significant higher than mean score learning at pre-test ($\bar{x}=3.25$, S.D=1.48) and after 4 week test ($\bar{x}=5.87$, S.D=1.12) ($p < .05$). Besides, after 4 weeks test was a statistically significant higher than the pre-test ($p < .05$). (Table 2).

Table 2 Comparison of mean score learning at pre-test, after 4-week test and post-test.

Source of Variance	df	SS	MS	F	p
Exam time	2	100.083	50.042	42.264	.000
Error	14	16.583	1.185		

Mauchly's W = .521, Chi-square (2,8) = 3.910, $p = .142$
 The results of pairwise comparisons were analyzed using the Bonferroni's method
 Post-test > Pre-test ($p = .001^*$, $d = 5.00$)
 Post-test > After 4-week test ($p = .004^*$, $d = 2.375$)
 After 4-week test > Pre-test ($p = .001^*$, $d = 2.625$)

* $p < .05$.

2.2.3 Numbers comparison outcome

The results of mean score learning found that mean score learning at post-test ($\bar{x}=4.75$, S.D=.46) was a statistically significant higher than mean score learning at pre-test ($\bar{x}=2.62$, S.D=1.50) and after 4 week test ($\bar{x}=3.87$, S.D=1.12) ($p < .05$). Besides, after 4 weeks trail was a statistically significant higher than the pre-test ($p < .05$). (Table 3).

Table 3 Comparison of mean score learning at pre-test, after 4-week test and post-test.

Source of Variance	df	SS	MS	F	p
Exam time	2	18.250	9.125	16.484	.000
Error	14	7.750	.554		

Mauchly's W = .561, Chi-square (2,8) = 3.473, $p = .176$
 The results of pairwise comparisons were analyzed using the Bonferroni's method
 Post-test > Pre-test ($p = .009^*$, $d = 2.125$)
 Post-test > After 4-week test ($p = .043^*$, $d = .875$)
 After 4-week test > Pre-test ($p = .016^*$, $d = 1.25$)

* $p < .05$.

V. DISCUSSIONS

The results of the research were discussed on key issues as follows:

1. The development of physical activity model to enhance learning of children with intellectual disabilities.

The physical activity model was developed to enhance learning of children with intellectual disabilities by applying the principles and theories of physical activity. The researchers assessed the quality of the tool by quantifying content validity through experts to verify the quality of this model. It was then analyzed to find the index of item objective congruence (IOC) and found that the IOC value was 0.94. The researcher took the recommendations from the experts to improve and change them and used them to experiment with the experimental group with similar characteristics to the sample group. This index of item objective congruence showed that the development of a physical activity model to enhance the learning of children with intellectual disabilities was of outstanding quality and was suitable for use as a model for this group of children. This is because physical activity is a medium to stimulate learning. If someone properly practiced them, they can support children with intellectual disabilities to develop physically, mentally, emotionally, socially, and intellectually. Basic movement activities included picking, carrying, throwing, walking, running, rolling, crawling, jumping, swinging your arms, body rocking, bending, stretching, climbing, hanging, etc. These activities are all the starting points for motivating children in learning to develop their thinking and making appropriate decisions. The development of the sensory nervous system is very important because the sensory system transmits information to the neuromotor system that controls movement. If they receive information from the movement skill training correctly, clearly, and completely, it affects the learner's ability to learn and perform the movements correctly, quickly, and perfectly [12][13]. The study of this result supports the finding of previous study conducted by Giagazoglou et al [14] who study the effects of a trampoline exercise intervention on motor performance and balance ability of children with intellectual disabilities. It was found that trampoline intervention resulted in an experimental group was statistically significant increasing of performance in all motor and balance test and could be an effective intervention for improving functional outcomes. With respect to Dandashi et al [15] who studied the enhancing the cognitive and learning skills of children with intellectual disabilities through physical activity and edutainment games. It was found that after the experiment, the mildly disabled groups achieved best results in terms of scores and coordination, whereas all the observed groups exhibited high motivation levels. With regard Capio et al [16] who studied reduction of errors during facilitates fundamental movement skill learning in children with intellectual disabilities. The result showed that after the

experiment, the error reduction program improved movement form, and increased throwing activity during free play to higher extent than the error-strewn programme. Additionally, this findings support the use of movement skills training programmes that constrain practice errors in children with intellectual disabilities. Dealing with a study on motor and cognitive development of children with Down syndrome: The effect of acquisition of walking skills on their cognitive and language abilities conducted by Yamauchi et al [17], it was found that the motor development was correlated with both language development and cognitive in young children with Down syndrome. This finding also recommended that achievement of walking could facilitate later language development and cognitive in children with Down syndrome.

2. The effectiveness of the physical activity model to enhance the learning of children with intellectual disabilities.

Participation in physical activities to enhance the learning of children with intellectual disabilities over 8 weeks showed significant improvement in learning outcomes compared to before and after the experiment. There was a statistically significant difference at the .05 level in terms of cognitive learning to use counting, numbers comparison and matching numbers. These were the starting points for enhancing children's learning motivation to develop thinking and decision-making. The numerical matching test results of the samples during the post-test after 4 weeks test and pre-test were statistically different at the .05 level for all tests. Except for the numerical matching test, only the results of after 4 weeks test versus the pre-test were not significantly different at the .05 level. In the first four weeks, children need to adjust to familiarizing themselves with the equipment used in the activity model, along with the basic adjustments in their posture, so we may observe no significant learning changes. However, after 8 weeks of physical activity, there was a higher change in learning to match numbers. Children could learn from bodily movements and repetitions, which encouraged learning from the functioning of the forebrain. The cerebrum handled the perception of information from external stimuli. Sensory processing learning included vision, language, communication, thinking, learning, and memory in the frontal lobe. The temporal lobe handled the control of speech, movement, thinking, memory, intelligence, and language. The occipital lobe handled auditory control, olfactory, language comprehension, and listening. Consistent with the idea of Eric Jensen [18], the key part of the brain that is directly involved in learning is the cerebrum, where most learning takes place on this part of the brain. The nervous system contains brain cells that are connected to brain cells and learning new things begins with brain cells which have nerve fibers as receptors. There is a link between the nerve

and the dendrite and when stimulated it creates a more networked connection. At the physical activity stage, children have positive emotional responses such as fun, interest, and challenges. The brain secretes dopamine and endorphins through the synaptic gap, making their memory and thinking processes more efficient. Dealing with the idea of Supaviboon and Krabuanrat [19], when a child engages in physical activity or takes part in motor skills, it stimulates the neurons responsible for motor control, sensory neuron, and motor neuron. It also allows the brain's memory to recall information from doing and thinking repeatedly using a variety of motor activities. They should arrange movement activities in steps from simple movements to hard movements. This is to lead to the development of accurate, precise, and perfect skills in learning and retrieving memory information through bodily movements. It is consistent with the study of Hartman et al [20] studied skill-related physical fitness versus aerobic fitness as a predictor of executive functioning in children with intellectual disabilities or borderline intellectual functioning. They found after the trial that skill-related physical fitness was significantly associated with inhibition and both measures of cognitive flexibility, while in the same models did not significant associations between aerobic fitness and executive functioning. In addition, age was significantly related to cognitive flexibility and working memory, favoring the older children. In children with intellectual disabilities, skill-related physical fitness is of higher importance than aerobic fitness in relationship with core domains of executive function. The study results support the finding of previous conducted by Capio et al [21] who studied Fundamental movement skills (FMS) training to promote physical activity in children with and without disability: A pilot study. They found that training groups improved in FMS while control group was not statistically different and no significant changes in weekday physical activity were found. Increased weekend moderate to vigorous physical activity was found in the training groups. With respect to Lotan et al [22] who studied physical fitness and functional ability of children with intellectual disability: effects of a short-term daily treadmill intervention. They found that after the experiment, children with intellectual disabilities had a statistically significant increase in physical fitness at the .05 levels, as measure by resting heart rate and during exercise. The improvement had correlated with statistically significant in functional ability of participant at the .05 levels. As a result, the children taking part in this study showed a statistically significant improvement in their motor skills at the .007 levels. Beside, Sukdee [23] studied the effects of exercise using bosu ball on balance, muscular strength and cardiovascular system of the autistic children, The

result revealed that after the trial, children with moderate autism had an average increase in balance, muscular strength, and circulatory abilities (decreased resting heart rate) compared to the pre-test and there was a statistically significant difference at the .05 levels. Moreover, Laohaphaithun and Phothiyeen [24] studied teaching by using games to promote the ability to write three-digit numbers of students with intellectual disabilities. They found that after the experiment, children with intellectual disabilities had a higher mean rate of their ability to write three-digit numbers compared to before teaching using game activities.

VI. CONCLUSION

Children with intellectual disabilities are developmental disabilities that limit their intelligence, learning, and adaptation to daily life. Children with moderate intellectual disabilities have an intelligence quotient (IQ) of 35-49 levels. We can see children with intellectual disabilities within 1 year of age and a sign of moderate intellectual disabilities is the delayed speech. They need support at school, home, and society to enable them to take part in society. Physical activity is a tool that can improve the learning of these children. The physical activity characteristics for children with moderate cognitive impairment should be simple, in order from easy to rare, light to hard, and low to high. In addition, repetition of the practice has a positive effect on learning. After every practice, it is necessary to be rewarded with compliments, applause, and hand touches. The researcher developed a model of 8 physical activities to the promote learning for children with intellectual disabilities. After using the physical activity model to the promote learning, these children showed positive changes in basic physical activity, including picking, throwing, walking, running, rolling, and jumping. These are the starting points for motivating children to learn, leading to the development of thinking, perception, learning, and decision-making, along with encouraging them to be self-reliant and reduce their dependence on family and society.

Application

1. The application of physical activities to promote learning of children with intellectual disabilities should take into account the availability of personnel, location and safety in order to prevent accidents that may occur during the activity.
2. In each physical activity to promote learning of children with intellectual disabilities, teachers, parents or related persons must closely supervise these children.

Suggestions for further study

There should be study of physical activities that can promote children with intellectual disabilities in other skills such as

social skills, communication skills, motor skills and physical fitness. These are essential skills in the life of this group of children.

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The satisfaction on the elderly's allowance Paymentservice:case study of Phra -intaracha district municipality, Phra Nakhon Sri Ayudthaya Province

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Abstract— This research is aimed (1) to study the satisfaction level of the elderly towards the elderly's allowance payment in Phra-intaracha district municipality,Phra Nakhon Sri Ayudthaya Province(2) to compare the elderly's satisfaction ranging from sex, age,status,income,career, and residence which is the same place as mentioned above.In term of research population,this research has used those who arepaidtheelderly's allowance totally 257 people which are selected by purposivesampling method.The research methodology was the questionnaire with 5 rating scales,with 0.90 of reliability.The statistics for data analysis was Percentage, Mean, Standard Deviation, T-test and One-Way ANOVA.The research result was found that the satisfaction level of the elderly towards the elderly's allowance payment was considered as the most satisfactory of all aspects and can be rated as follows: (1)Timely service (2)Equitable service(3)Continuous service and(4)Ample service respectively.The result of comparison on the elderly's satisfaction in overall was found that (1) Different sex and status has not different satisfaction towards services. (2)Age, income, career and residence area have different satisfaction towards services with the statistical Significance of 0.05

Keywords— Elderly, Allowance payment

I. INTRODUCTION

In current problem situations of all countries have arisen considerably such as poverty, socio-economic problem, terrorism including global demographic one into aging society, are considered as a problem of public sector in all countries which need to assist the elderly both in living condition, health problem as well as some earnings after the retired life or some abandoned elderly.As detailed in the research titled as quality of life of the elderly in Thailand in term of sustaining the aging society can conclude the problem and desire of the elderly as follows: (1) problems and hygienic desire(2)problems and economic desire (3) problems and desire on relationship among family members (4)problems and service desire on infrastructure(5)problems and social grouping.Such problems, public sectors in each country,therefore; seek to find out some legal guidelines and measures in order to solve and lay down some useful regulations for citizen and country administration.

Specifically, for Thailand context, it has been stepping into aging society for several years and in 2019, a survey on elderly population by the National Statistic Office found that the number of elderly was 8.27 million.In this regard,the Department of Local Administration had ever spent its budget for this issue about 65.4 million Baht.[1]Therefore, the elderly's allowance project has been determined to increase some incomes of citizens supported by the Ministry of Social Development and Human Security and the Committee of National Elderly persons on the Regulation of Elderly's allowance paymentin order to guarantee the systematic elderly's earnings and stimulate the country's domestic spending. That's why the government has to allocate the budget on Elderly's allowance especially for those who are over 60 years old by paying at ratio: 600-1,000 Baht /a person /month according to the sliding scale of aging.

At the beginning,the elderly's allowance was administered by Public Relations Department which had assigned the Office of Provincial Public Relations to carry out the task towards village people's assistance center.Once the Department of Public Welfare was merged into Ministry of Labor and Social

Welfare in 1993 to take care this kind of service. Meanwhile, the decentralized policy in 2001 under the supervision of the Department of Public Welfare had started to transfer its mission to Department of Local Administration and Bangkok Metropolitan Administration to take over this mission instead until the present. This policy has been considered as good one that has been taken into account in the importance and concrete goal of the appropriate social welfare law for the elderly for the sake of the benefit and impartial integrity. [2] From the background and significance of the problem, the elderly's allowance policy has been prolonged by the government which has been continuing for several years, nonetheless there are still some doubts and claims from the elderly and relatives in the operation that are found from many sources of news because this project has been considered a significant project for the elderly who have been assisted in term of financial assistance in earning a living. In this regard, the researcher has been considering this interesting topic which has been reported through many researches from other researchers in term of providing services from the Department of Local Administration. The researcher has ever studied in this area of Phra-Intaracha District Municipality, Bang-Pa-In District, Ayudthaya Province how this study would be. In order to disseminate such information to other related agencies or other different areas to improve such long term of the project including the trend of future projects for the utmost benefit of people.

II. RESEARCH OBJECTIVES

The objectives of this research article were 1) To study the level of satisfaction of elderly towards the elderly's allowance paying service in the area of Phra-Intaracha District Municipality, Bang-Pa-In District, Ayudthaya, and 2) to compare the satisfaction of the elderly classified by sex, age, status, income, and residence area in the area of Phra-Intaracha District Municipality, Bang-Pa-In District, Ayudthaya

III. RESEARCH METHODS

A. Research Hypothesis

The elderly who have different sex, age, status, income, career and residence area have different satisfaction towards elderly's allowance payment service.

B. Research Scope

1. Demographic scope, the population in this research were the people who have got the elderly's allowance specifically

for nine communities in the area of Phra-intaracha District Municipality, Bang-Pa-In District, Ayudthaya Province. [3]

2. In term of research contents, this research has focused on the level of satisfaction of elderly people towards the elderly people's allowance payment in the area of Phra-intaracha District Municipality, Bang-Pa-In District, Ayudthaya province in term of four aspects; (1) Equitable service (2) Timely service (3) ample service (4) Continuous service

3. In case of timing scope, the duration of data collecting had set off from the first date of July 2019 to 18 of October 2019 totally lasting four months.

C. Concepts and related theories

This research has introduced concepts and related theories as follows; Satisfaction theory of Millet quoted that the satisfaction in service has been considered into five aspects namely (1) equitable Service (2) Timely service (3) Ample service (4) continuous service (5) Progress service [4]

Conceptual framework

This research will be studied on the satisfaction in the elderly's allowance payment service for the case study of the area in Phra-intaracha District Municipality, Bang-Pa-In District, Ayudthaya province by studying from the conceptual framework and related theories.

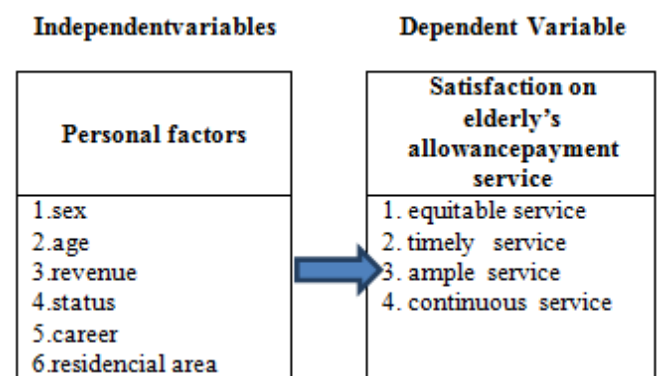


Fig.1 Conceptual framework

E. Research methodology

The research titled; the satisfaction of the elderly towards the elderly's allowance payment in the area of Phra-intaracha District Municipality, Bang-Pa-In District, Ayudthaya province was a quantitative research that has been studied in order as follows:

1. Population and sample size

The population was the elderly people who have got the elderly's monthly allowance in the area of Phra-intaracha District Municipality, Bang-Pa-In District, Ayudthaya province. The sampling size was used in 257 cases by using Yamane formula [5] for calculating on sampling size while using the purposive sampling.

2. Research instruments

The tool in collecting the research data was questionnaire in which the researcher had created the research instrument by the following steps (1) study the method of carrying out the questionnaire by collecting data from the document and related textbooks to be a guideline in making a questionnaire (2) Ask for some guidelines from my advisor in searching for independent variables for being a guideline in carrying out the questionnaire. (3) Making a questionnaire covering conceptual framework and purposes of the research for an instrument in collecting data from sampling group in order to be analyzed (4) forward the questionnaire to the expert to examine the validity of content and used language, in case that there are some recommendations, the researcher will later improve (5) The improved questionnaire to be forwarded to experts for examining, in case that there are some recommendations, the researcher would improve the research completely.

The instrument to be introduced for the research in collecting data was divided into three stages: (1) Personal factor, the characteristics of questionnaire will be asked in 7 questions such as sex, age, status, revenue, career and residence area, (2) The questionnaire on the satisfaction in people's allowance payment will be a questionnaire with five rating scale namely the most satisfied (5 score), very satisfied (4 score), moderately satisfied (3 score), less satisfied (2 score) and the least satisfied (1 score). The mean score of 4.51 -5.00 means the most satisfied, the mean score 3.51-4.50 means very satisfied, the mean score 2.51 -3.50 means moderately satisfied, the mean score 1.51- 2.50 means less satisfied and the mean score 1.00- 1.50 means the least satisfied. And for the section three, the additional suggestions are made in the form of open-ended questions in which some suggestions are needed to fill in this section in order to improve the satisfaction in the elderly's allowance payment.

In term of instrumental testing, when it is already done by being tested for thirty units with the elderly who have registered in the area of Phra-intaracha District Municipality, Bang-Pa-In District, Ayudthaya province. The random sampling is not done in the same group which was virtually collected and then analyzed with Cronbach's alpha by Cronbach to test validity of 0.905. [6]

3. Data Collection

By using the sophisticated program to analyze data as targeted and hypothesis that the researcher had designated that was a kind of the secondary data collected from searching in textbook, document, academic textbooks, related researches from the Website of the Office of National Research Council of Thailand and related websites.

4. Use of statistics in data analysis

Comprising of Percentage, Mean, Derivative Standard-test and One-Way ANOVA. In the section I of the questionnaire, data will be analyzed by the method of Percentage and Mean. While in the section II, data will be analyzed by Derivative Standard, T-test and One-Way ANOVA. The statistical significance was 0.05

F. The result of data analysis

The study on the satisfaction on the elderly's allowance payment in Phra-Intaracha district municipality, the researcher has already analyzed the data as follow:

Section I. The result of personal factor of the elderly analysis

The result of personal factor of the elderly analysis for totally 257 cases as classified with the characteristics of the service users can be found that (1) most elderly people are female accounting for 138 persons (53.70%) (2) most elderly people are between 70 -74 years old totally 65 persons accounting for 25.30% (3) most elderly people have incomes ranging from 10,000-15,000 Baht totally 109 persons accounting for 42.40% (4) In term of social status, most elderly people are divorced and widowers totally 122 persons accounting for 47.50% (5) Most elderly people are farmers totally 106 persons accounting for 41.20% (6) For the residential area, most elderly people live in Generosity community for totally 42 persons (16.30%)

Section II. Result of the elderly's satisfaction on the elderly's allowance payment service Analysis

The result of the elderly's satisfaction Analysis for payment service has indicated that elderly have the most satisfaction (\bar{x} = 4.65) when considering all aspects of satisfaction which can be rated as follow: (1) Timely service (\bar{x} = 4.69), (2) Equitable service (\bar{x} = 4.68), (3) Continuous service (\bar{x} = 4.64), (4) Ample service (\bar{x} = 4.63) respectively when considered all aspects that can be summarized as follow:

1. Equitable service

The satisfaction in elderly 'allowance payment in overall can be found that having the most satisfaction (\bar{x} = 4.68) when considering all aspects that can be ranked as follows: (1) The timely service of staff (\bar{x} = 4.79) (2) Equitable service (\bar{x} = 4.74) (3) The integrity of staff (\bar{x} = 4.68) (4) the willingness in service (\bar{x} = 4.51) respectively.

2. Timely service

The satisfaction in the elderly's allowance payment can be found in overall that the level of satisfaction is the most (\bar{x} = 4.69) when considered in all aspects of satisfaction that can be ranked as follows; (1) Appropriate time of service (\bar{x}

=4.77)(2)The rapid and uncomplicated stages of service(\bar{x} =4.69) (3) Receiving of timely elderly's allowance(\bar{x} = 4.67)(4)Receiving information prior to elderly's allowance reception(\bar{x} = 4.66) (5) Rapid service (\bar{x} = 4.65) respectively.

3. Ample service

The satisfaction in the elderly's allowance payment in overall was found that it was the most satisfactory (\bar{x} = 4.63),when considering in all respects can be ranked as follow:(1)The registration places are rotated thoroughly (\bar{x} =4.72), (2) The service location is convenient to access (\bar{x} =4.70),(3)The service location is clean and neat (\bar{x} = 4.68).The service has enough equipment (\bar{x} = 4.68).The staff who are ready to give recommendations and answer some doubts instantly (\bar{x} = 4.68), (4)The number of seating for giving enough service to people(\bar{x} =4.67),(5)The service location is arranged proportionately (\bar{x} = 4.63).The staff are sufficient to give service, (6)There is a thorough dissemination of information (\bar{x} = 4.56), (7)The parking location for people who come for service is sufficient. (\bar{x} =4.52),(8) the media for explaining some clear details of service respectively.

4. Continuous service

The satisfaction towards the elderly's allowance payment in overall found that the level of satisfaction is considered the most satisfactory (\bar{x} = 4.64) when considered all aspects can be ranked as follows; (1) the continuity of service cannot be ceased (\bar{x} = 4.69), (9)the public relations for information of allowance payment is persistent (\bar{x} = 4.68), There is always an intensive care after service

Section IIIThe analysis on the comparison in the elderly's allowance payment

Hypothesis I

The elderly who have different sex have different satisfaction on the elderly's allowance payment. The overall test result found that the elderly who have different sex have not different satisfaction on the elderly's allowance payment. When considering on the revenue aspect, it had been found that the elderly who have different sex have different satisfaction on the equitable service the elderly's allowance payment at the Significance statistical value of 0.05. Whereas the elderly who have different sex have not different satisfaction on the elderly's allowance payment for the other three aspects of satisfaction.

Table I Comparison of satisfaction on the elderly's allowance payment classified by sex

Satisfaction on the elderly's allowance payment classified by sex	t	p (*sig. < 0.05)
1. Equitable service	-2.187	.030*
2. Timely service	-1.712	.088
3. Ample service	0.537	.591
4. Continuous service	0.947	.344
Total	-0.278	.781

Hypothesis II

The result of the test concerning the satisfaction in the elderly's allowance payment when identifying by age of the elderly that can be found that there was the overall different satisfaction at the statistical significance of 0.05. When considering all aspects of satisfaction, the satisfaction on equitable service and timely service at the statistical significance of 0.05 while the satisfaction on ample service and continuous service are not different.

Table II Comparison of satisfaction on the elderly's allowance payment classified by age

satisfaction on the elderly's allowance payment classified by ages	F	p (sig. < 0.05)
1. Equitable service	6.231	.000*
2. Timely service	7.088	.000*
3. Ample service	2.329	.057
4. Continuous service	0.922	.452
Total	3.706	.006*

The test in pairs in overall can be found that the pairs in age of 59-64 and 80 years old are satisfied at the statistical significance of 0.05 in term of earning. In term of equitable service, the pairs aged in 59-64 and 65-69 years old and the pairs aged in 59-64 and 75-79 years old are satisfied at the statistical significance of 0.05. In term of timely satisfaction, the pairs aged in 59-64 and 65-69 years old, the pairs aged in 59-64 and 75-79 years old, the pairs aged in 65-69 and 70-74 years, the pairs aged in 65-69 years and over 80 years, the pairs aged during 70-74 years and over 80 years old are all satisfied at the statistical significance of 0.05.

Hypothesis III

The elderly who have different incomes are satisfied with the different elderly's allowance payment.

The test result on satisfaction in the elderly's allowance payment service when classifying the elderly's revenue can be found that in overall the satisfaction is different at the statistical significance of 0.05. When considering all aspects,

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there is a different satisfaction namely in equitable service, ample service and continuous service at the statistical significance of 0.05.

Table III Comparison of satisfaction on the elderly's allowance payment classified by their income

satisfaction on the elderly's allowance payment classified by their income	F	p (*sig. < 0.05)
1. Equitable service	6.860	.000*
2. Timely service	14.086	.000*
3. Ample service	3.225	.023*
4. Continuous service	4.045	.008*
Total	5.788	.001*

The test in pairs in overall have been found that the pairs with revenue ranging from 0-5,000 and over 15,000 Baht and the pairs with revenue ranging from 5,001-10,000 Baht and over 15,000 Baht have different satisfaction at the statistical significance of 0.05. In term of ample service, the revenue ranging from 5,001-10,000 Baht and over 15,000 Baht have different satisfaction at the statistical significance of 0.05. And the continuous service, the pairs with revenue ranging from 10,001-5,000 Baht and over 15,000 Baht have different satisfaction at the statistical significance of 0.05.

Hypothesis IV

The elderly who have different status have different satisfaction. The test result of satisfaction in the elderly's allowance payment service classified by the status of the elderly can be found in overall that they have not different satisfaction when considering in individual aspect of satisfaction namely the satisfaction is different in case of timely service while the continuous service has different satisfaction at the statistical significance of 0.05. Meanwhile the equitable service and ample service have no different satisfaction.

Table IV The comparison of the satisfaction in the elderly's allowance payment service classified by status

satisfaction in the elderly's allowance payment service classified by social status	F	p (*sig. < 0.05)
1. Equitable service	1.440	.239
2. Timely service	8.479	.000*
3. Timely service	0.219	.804
4. Continuous service	4.451	.013*
Total	9.939	.392

The test for the pairs in term of timely service has been found that single status as well as widow or divorced together with the married, widow or divorced status have different satisfaction at the statistical significance of 0.05. Meanwhile, in term of the ample service, the pairs with single status have different satisfaction at the statistical significance

Hypothesis V

The result of the test on the satisfaction in the elderly's allowance payment service classified by their careers has shown that in overall they have different satisfaction at the statistical significance of 0.05. Once taking account into all aspects of satisfaction, it was found that every aspect of satisfaction has its different satisfaction namely there are some different satisfaction in term of equitable service, ample service and continuous service with the statistical significance of 0.05.

Table 5 Comparison of the satisfaction on the elderly's allowance payment service classified by careers

satisfaction on the elderly's allowance payment service classified by careers	F	p (*sig. < 0.05)
1. Equitable service	10.849	.000*
2. Timely service	14.037	.000*
3. Ample service	7.855	.003*
4. Continuous service	3.317	.021*
Total	6.592	.000*

The test in pairs can be found in overall that the pairs in commercial work and farmers are satisfied differently with the statistical significance of 0.05. In term of individual satisfaction in pair test, it has shown that the for the equitable service, the pairs in the commercial work and farmers together with the pairs in hiring service and farmers are differently satisfied at the statistical significance of 0.05. In term of timely service, the pairs in the commercial work and farmers together with the pairs in hiring service and personal business and the pairs in the commercial work and farmers together with personal business are differently satisfied at the statistical significance of 0.05. For the ample service, the pairs in commercial work and personal business and the pairs in hiring service and personal business are differently satisfied with the statistical significance of 0.05. In term of the continuous service, the pairs in hiring service with personal business are differently satisfied at the statistical significance of 0.05.

Hypothesis VI

The elderly people who have their different residences are differently satisfied with the elderly's allowance payment service. The test result of the satisfaction on the elderly's allowance payment service when classified by their residential areas. It was found that in overall there was different satisfaction at the statistical significance of 0.05. When considering all aspects of satisfaction, it was found that there was a different satisfaction in terms of the equitable service, ample service and continuous service at the statistical significance of 0.05.

Table 6 The comparison of the satisfaction on the elderly's allowance payment classified by their residences

Satisfaction on the elderly's allowance payment classified by their residences	F	p (*sig. < 0.05)
1. Equitable service	4.126	.000*
2. Timely service	12.174	.000*
3. Ample service	2.496	.013*
4. Continuous service	6.567	.000*
Total	4.122	.000*

The overall test in pairs can be found that the pairs at Sri thong Village together along with Ruamchai Pattana village had different satisfaction at the statistical significance of 0.05. For the test of individual aspect of satisfaction. For paired samples result could be found that the equitable service could not be found for any different pairs. Meanwhile for the timely service, the pairs at Pratunam Pa-in market and Wat Thammanawa Pathana, the pairs at Pratunam Pa-in market together with Caring for development center, the pairs at Moo 6 Phattana along with the pairs at Wat Thammanawa Pathana, the pairs at Moo 6 Phattana along with Caring for development center are all satisfied differently with the statistical significance of 0.05.

For the case of ample service provided cannot be found some different pairs while for the continuous service, the pairs at Pratunam Phain Market along with Srithong Village, the pairs at Pratunam Phain Market with Ruamchai Phattana, the pairs at Sri thong village along with Soi Yothaphattana, Sri thong village area with Sanitwong area, the pairs at Sri thong village along with Wat Thammanawa Phattana area and finally at Sri thong Village along with the caring for development area are differently satisfied at the statistical significance of 0.05.

IV. DISCUSSION

The result of study has indicated that the elderly are satisfied with all aspects of satisfaction in elderly's allowance payment. This has resulted from the operating of agencies in the area of case study according to the Ministry's policies, working plan and procedures. The abrupt solution has made the elderly satisfactory with four aspects of services when receiving the elderly's allowance payment. Moreover, this project has been a kind of revenue guarantee for the elderly who have not enough revenue. When the government has administered this kind of project, the elderly people are all satisfied in overall and feel good because the incoming revenues make all elderly have more income, more life insurance in accordance with the study of on the satisfaction of the elderly on the elderly's allowance payment in case study of Chaophaya Surasak District Municipality that can be found that the elderly have their satisfactory ideas on the

elderly's allowance payment at much satisfied. [7] Since such these incomes have made the elderly have more revenue that can be assured of their secure lives in according with the study of titled: the satisfaction towards the elderly's allowance payment in case of the District Municipality Chao phaya-Surasak that the elderly have the level of opinion on the satisfaction in the elderly's allowance payment in overall. When considering the individual aspect of satisfaction has found that the equitable service has the most satisfactory opinion.

Meanwhile, the satisfaction in case of ample service, continuous service, and timely service have followed respectively. In term of the equitable service, the staff have integrity, honesty, and never call for their

Interests in ample service, and they have enough equipment for service. For the continuous service, there is always an intensive care after service. Moreover, for the timely service, the stages in contacting for the quick and uncomplicated service. There are also some recommendations on outdoor services by providing mobile services in many districts until totally five districts rotated around or sending off the staff for service among communities.

Within the area of District Municipality Chao Phaya-Surasak where there are elderly people live in they would receive convenient, and rapid service thoroughly from the government agencies and should develop the potential for their personnel for professional service by the method of continuous training and service performance result given. Such research was relevant to the ideology of Walman [8] that the satisfaction in life was like a feeling arisen when the human has the desire and receive a response to the his desire for making the human satisfied with.

Moreover the government is still structured to determine some measures concerning the elderly in term of providing mobile welfare services and giving discounted privileges or tax exemption for the elderly people and those who support the elderly people in their families. In this regard, Local Administration Organizations has considered determining the fixed date, timing, and registration places in advance by considering rotated registration places to be held along communities or villages thoroughly in order to facilitate the elderly. Local Administration Organizations will carry out the registration process for those who will be sixty years old and is not registered before are entitled to receive the elderly's allowance before November and it is subject to be announced for the public. That's why, the elderly need not go to the main organizations that may be too far and inconvenient for them, etc.

Or via a bank process in form of bank transfer which will be used for the elderly. This would make the elderly more

convenient that is relevant to the study of titled: The research project for the appraisal on the elderly's allowance payment, while evaluating the process, method, operating procedures and readiness of Local Administration Organizations. [9] The mechanism for administration of Local Administration Organization towards carrying out the project on appraisal for the elderly's allowance payment can be found that the elderly who are deserted, abandoned in communities. In term of selection process for the elderly's allowance payment can be commonly considered for many aspects and that should be mutually processed and considered from public sector, private sector, citizenship sector and local sectors. For the elderly's allowance payment process, it should be transferred to the elderly's bank account the most. Meanwhile, the process for paying the elderly's allowance is still punctual for the period of the elderly's allowance payment, namely six times per month. Most have considered that it was inappropriate and should be paid in quarterly period. They also realized that a sum of three hundred Baht instalment per month is even too little, not thoroughly and common for affected elderly. Also, the committee for selecting the elderly's allowance payment is not proper, still lack of supervising mechanism, clear operating which was relevant to Millet's ideology [4] on the idea that the satisfaction for service was recognized on following five components: 1. Equitable, 2. Time Service and 3. Ample Service, Millet had thought that the equality or punctuality were meaningless if the number of service providers were not sufficient and locations for such services were not fair for services, 4. The continuous service is a kind of frequent public service that seizes the benefit of the public but not take into account for the satisfaction of service providers no matter services are served or shut down anytime 5. For the progress service, it is a kind of public service that is improved for its quality and its performance.

The result on the comparison on the elderly's allowance payment classified by personal factors of the elderly has been found that the elderly with different ages, revenues, careers, and residences have different satisfactions on the elderly's allowance payment with the statistical significance of 0.05. As of previous experiences of service they received in the past are likely to be different that have made their ideas and attitudes are subsequently different. There are many views of point that should be in different patterns according to their ideas, feelings and own experiences. The result of this study is relevant to the study on the satisfaction towards services of Bangkumthien District, Bangkok [10] which was found that the satisfaction of the people towards the services of the Office of Bangkumthien District, Bangkok in overall, are the most satisfactory, namely secondly concerning service personnel

and service location respectively. In term of service aspect, it was served in priority, while the staff are honest and does not call for the benefits. For the case of service location, its cleanliness inside the office, considered from the result of comparison on the satisfaction towards services given by the Office of Bangkumthien District, Bangkok Metropolitan is different among people in that area with the statistical significance of 0.05 that is relevant to the study of titled "the satisfaction of the elderly people towards the elderly's allowance payment for the case study in the area of Chao-Phaya Surasak District Municipality" [7] which has been found that the elderly people have considerable satisfaction on the elderly's allowance payment. Meanwhile, the elderly with different ages, revenues, and residences are differently satisfied with the elderly's allowance payment with the statistical significance of 0.05.

V. RECOMMENDATIONS

1. In term of policy recommendation, namely (1) the equitable service should be improved in term of service given by the staff who facilitate the elderly with willingness in order to make them satisfied without discrimination (2) In case of timely service, it has been found that it should be improved in term of speed and queue management (3) For the ample aspect of service, it should improve the parking lots for the elderly more clearly (4) The continuous service, it should be followed and coordinated with the community leader to propagandize the elderly in the community to know and recognize the problem and be able to measure the satisfaction level of the elderly after service.

2. Practical recommendations, The recommendations for the next research is (1) to study the problem and obstacles towards the elderly's allowance payment service of the municipality and local administration organizations in order to improve the efficient service. (2) to study problem arising from the performance (3) For the ample service, it should provide mobile cars for serving people in communities and also coordinate with the community leaders in order to make community members informed and received the services. (4) It should follow and coordinate with community leaders to propagandize the elderly people to know and recognize the problems arising and measure the satisfaction after service.

3. The recommendations for next research is to (1) study the problem and obstacles of the elderly towards the elderly's allowance of the municipality and other local administration organizations in order to improve services for the elderly efficiently. (2) To study the problem from the performance of services given by the municipality in order to be improved efficiently. (3) To study the sufficiency of welfare reserved for

the elderly in the present and something else that the elderly need in their livings in connection with the public sectors' budget allocations appropriately together with the public potential.

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VI. CONCLUSION

Although, there has been a change in the payment system for the elderly after the completion of this research to be paid through the bank transfer system, actually the government should focus more on creating jobs than caring for the elderly by paying only a living allowance. Because, the monthly pension received at the present is not sufficient for the living for the elderly. On the other hand, providing them the job or skill enhancement that suit for their age or sharing the skills that they have and pass them on those knowledge to the community would be more efficient for both community and the elderly. To conclude, having activities in coexistence with society, having an income that can support oneself, having medical expenses, these would bring their retirement more happily and sustainable.

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Pink Tourism Behaviour in Bangkok

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Abstract— This study aims to study the tourist behaviour focusing on FIT Chinese gay men tourists during their visit in Bangkok. The quantitative research approach was employed. The data was collected by questionnaire survey of 400 respondents. The 400 Chinese gay men were conveniently selected at main attractions in Bangkok. Tourists who travelled with tour operator were excluded due to the lack of choices of attractions and activities. The questionnaire was divided into 4 parts. Part one asked about their demographical information. Part two was Likert scale of 5 levels asking their opinions examine on tourist behaviour (number of visitations, purpose of visit, accommodation, travel companion, expenditure, and activities). Part three asked their opinions on accommodation selection, destination selection, and intension to visit. Part four was open-ended question for their comments. The data was analysed using frequency and percentage, mean, and standard deviation. Chi-square was used to test the correlation between sociodemographic and behaviour. The results showed the positive significant correlated. The tourists tended to revisit Bangkok due to all year availability of destination followed by worth experience and being accepted. The diversity of gay space in Bangkok was also great. They were likely to stay in accommodation where worth their money followed by near gay attractions. Lastly, they made their decision based on information from famous person followed by social media.

Keywords— Pinktourism, Gay tourism, Tourist behaviour, Gay tourist behaviour, Bangkok

I. INTRODUCTION

The term 'Pink Tourism' has been referred to gay tourism and recently to LGBTQ tourism. Pink was a symbolic colour for gay people since World War II. Pink triangle symbol was used to identify gay men, bisexual men, and transgender women in the Nazi Concentration Camp [1]. Later in 1970s, the pink triangle was shifted from the badge of shame to the insignia against homophobia. At the present, pink was associated with gay/ LGBT in many aspects such as 'pink money' or 'pink dollar' in the US and 'pink pound' in the UK. It was confirmed that pink money increased economic impact in travel industry. The pink tourism dollar was recognized as a highly profitable niche of the tourism market [2].

Pink tourism or gay tourism was not a recent tourism market. It was existed in the eighteenth century 'Grand Tour'. Many well-educated upper-class homosexual men from the Northern Europe travelled to the Mediterranean searching for exotic cultures, warmer climates, and the companionship of younger men [3]. In 1990s, gay tourism has enormously gained the interest from both tourism academic and tourism market. It was confirmed that gay and lesbian tourists became noticeable because of the aftermath 9/11. They were the first who came back and encourage people to travel again. It assumed that tourism industry in the U.S. owed them for a

quick return. Moreover, Due to LGBT culture has grown rapidly worldwide which opened the opportunities for both tourists and holiday makers [4]. The support to expose sexual identity by popular culture like Queer as Folk, British TV series (1999-2000). The study noted that it was used as resource for learning and constituting gay identities by audience [5]. At the same time, the encouragement from celebrities like Elton John, Rick Martin, Ian Thorpe, Ellen DeGeneres, and Elliot Page supported LGBT to come out of the closet [4]. Consequently, the evolution of gay tourism was strongly associated with the development and spread of homosexual rights.

Furthermore, the economic impact of gay traveller was measured and researched such as Community Marketing, Inc. since 1992. Furthermore, gay men were confirmed for higher income than average. Consequently, it made gay couple dual or double income with no kid (s) or DINK. They tended to have higher disposable income and free time for traveling. Even though, the study about gay and lesbian parented family suggested differently [6]. LGBT travellers were still considered desirable customers. It was estimated that the economic impact of LGBT travellers was over 65 billion per year in the U.S. alone [2].

As mentioned, LGBT has grown rapidly and become a potential market segment in tourism industry. Therefore, countries and cities were deliberately targeting the 'pink

dollar' such as Amsterdam, Stockholm and Copenhagen [7]. The literature has confirmed gay friendliness and freedom to express sexual identity were the crucial motivation for gay tourist [8]. They were less likely to visit China, Jamaica, all Muslim countries, and all Arab countries[9].Therefore, the societal tolerance and acceptance of homosexuality in many countries have been developed. Online platform was recently introduced to LGBT community. It gave message with visuals and information directly to LGBT. Some countries provide official online platform to support gay travellers such as Gay and Lesbian Tourism Australia, Purple Roofs in the US, and LGBT travel in the UK.Tourism Authority of Thailand has launched the website called 'gothaibefree.com' to promote LGBT friendly cities such as Bangkok, Chiang Mai, Phuket, Krabi, and Koh Samui. It provided information about activities, events, and hotels[10].

Recent literature studied the characteristics of gay tourist mostly gay men rather than gay women due to the more visible of gay men. In addition, a few studies suggested that, in terms of holiday choices and activities, gay women or lesbian tourists were not different from heterosexual [11]. Gay travellers were likely to travel in couples or alone rather than travelled in a tour group. They rather travelled short stay but several times a year [4]. The UNWTO report revealed that gay and bisexual men taking an average of 3.9 trips and lesbian/ bisexual women taking an average of 3.3 trips in one year. Moreover, the 22nd annual LGBT tourism reported that they were like to stay in 4-star hotel [12].Interestingly, were likely to be brand loyal supporting 'gay friendly' business. The literature found that they repeated visit to gay friendly destination and hotel loyal of gay guest[13].

It has approached to the research question how demographic of FIT Chinese gay men tourist would influence tourist behaviour during their visit and their intension behaviour to revisit Bangkok.

II. RESEARCH OBJECTIVES

The research objective is to study Chinese gay men tourist behaviour in Thailand.

III. RESEACH METHODS

A.Research Design

The research employed a quantitative research approach. Questionnaire survey was used to investigate the behaviour of Chinese gay men tourists who travel in Bangkok.The questionnaire was distributed to 400 FIT Chinese gay men tourist.Due to lesbian travellers were often invisible. The sample excluded tourists travelled in group tour. The sampling size was calculated according to the Cochran formula with a 95% confidence level and an uncertainty of ± 0.05 . The

questionnaire was divided into 4 parts. Part one asked about their demographical information. Part two examine tourist behaviour (revisitations, accommodation, length of stay, purpose of visit, travel companion, expenditure, and activities). Part three was Likert scale of 5 levels asking their opinions on repeat visitation, accommodation selection, and destination selection. Part four was open-ended question for their comments.

B. Research Process

The research has followed four steps of research process as followed 1) exploring the literature review; 2) developing data collection tool; 3) collecting data; 4) analysing data; and 5) presenting the results (see figure 1).

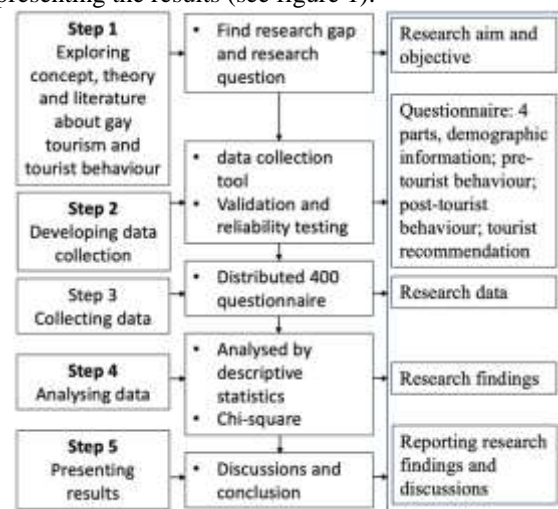


Fig.1 Research process

IV. RESULTS

The findings on Chinese gay tourists in Bangkok were reported in three parts. Part one was the demographic data. Part two was their behaviour during their visit. Part two was their intension behaviour as followed.

Demographic data of respondents

The data showed that most of the respondents were 21-30 year of age (36.50%), followed by 31-40 year of age (32.25%). They were mainly from China at 54.40% and 45.50% from Taiwan. Most of them travelled to Bangkok for leisure (79.75%) (see Table 1).

Table 1: Age, country of origin and purpose of visit

Demographic (n=400)	Frequency	Percentage
Age		
Below 20	1	0.25
21 - 30	146	36.50
31 - 40	129	32.25
41 - 50	60	15.00
51 - 60	54	13.50
61 and over	10	2.50
Country of origin		
China	218	54.50
Taiwan	182	45.50
Purpose of visit		
Leisure	319	79.75
Business	27	6.75
Health	40	10.00
Other	14	3.50

The findings of number of visitations, travel companion and expenditure were showed in the Table 2. Most of the respondents travelled for their second visit (48.50%), followed by first time visit (37.25%). They travelled with friend (37.25%), and travelled alone (27%). The expenditure of most respondents was between \$ 451– 600 (60%), followed by between \$ 651– 750 (30%).

Table 2: Number of visitations, travel companion, and expenditure

Demographic (n=400)	Frequency	Percentage
Number of visitations		
First visit	149	37.25
Second visit	194	48.50
Third visit	49	12.25
Over 3 visits	8	2.00
Travel companion		
Friend	279	69.75
Partner	13	3.25
Alone	108	27.00
Expenditure		
Below \$ 450	17	4.30
\$ 451 - 600	240	60.00
\$ 651 - 750	120	30.00
Over \$ 751	23	5.80

Chinese gay tourist behaviour during their visit

This part was the findings of their decision on location of accommodation, accommodation selection, and information source about Bangkok. The results were presented by mean. Then, the findings of cross tabulation analysis were followed. The findings showed that Haiy-kwang district was the highest rated for accommodation at a high level ($\bar{x}=4.18$), followed by Silom sub-district ($\bar{x}=3.98$), and Bangrak district ($\bar{x}=3.93$). On the other hand, the lowest rated was Sukhumvit ($\bar{x}=3.69$) and Sathorn ($\bar{x}=3.82$) respectively (see Table 3). Probably, these two areas were considered the high cost of living area in Bangkok.

Table 3: Location of accommodation

Location of accommodation	\bar{x}	S.D.	Level	Rank
Silom	3.98	.82	High	2
Sathorn	3.82	.96	High	6
Bangrak	3.93	.97	High	3
Klongteoy	3.89	.96	High	4
Pathumwan	3.86	.87	High	5
Khaosan Rd.	3.86	.86	High	5
Haiy-kwang	4.18	.81	High	1
Sukhumvit	3.69	1.11	High	7
Overall	3.90	.72	High	

The respondents were asked about the accommodation selection. The results revealed that ‘worth of money’ was the highest ($\bar{x}=4.00$), followed by ‘close to LGBT attraction’ ($\bar{x}=3.86$) and ‘cleanliness’ ($\bar{x}=3.82$). The lowest was ‘easy accessibility’ at a moderate level ($\bar{x}=3.31$) (see Table 4).

Table 4: Accommodation selection

Accommodation selection	\bar{x}	S.D.	Level	Rank
Easy accessibility	3.31	1.14	Moderate	6
Close to LGBT attraction	3.86	.88	High	2
Worth of money	4.00	.75	High	1
LGBT friendliness	3.75	.91	High	4
Cleanliness	3.82	.93	High	3
Standard of room quality	3.65	.91	High	5
Overall	3.73	.69	High	

The findings of the information source for destination selection showed that the highest rated was ‘influenced by well-known people’ ($\bar{x}=4.10$) followed by ‘social media review’ ($\bar{x}=3.98$), and WOM (Word of Mouth) ($\bar{x}=3.95$). The lowest was ‘mass media’ ($\bar{x}=3.89$) (see Table 5).

Table 5: Information source for destination selection

Destination selection	\bar{x}	S.D.	Level	Rank
Social media review	3.98	.91	High	2
WOM	3.95	.90	High	3
Influenced by well-known people	4.10	.79	High	1
Mass media	3.89	.93	High	5
Own experience	3.92	.96	High	4
Overall	3.96	.73	High	

Next, cross tabulation was used to examine the relationship of Chinese gay tourist behaviour including purpose of visit, number of visitations, accommodation, travel companion, information source, expenditure, night-life attraction, shopping mall, and income. It showed that night-life attraction did not differ by travel companion (see Table 6).

Table 6: Summary of cross tabulation test

Variable	Chi-square	Sig.	Conclusion
purpose of visit * number of visitations	13.842*	0.019	significant
accommodation * travel companion	16.698*	0.033	significant
accommodation * information source of attraction in BKK	33.419*	0.006	significant
expenditure * travel companion	19.248*	0.004	significant
night life attraction * travel companion	9.888*	0.273	not significant
shopping mall * income	29.941*	0.000	significant

The relationship between ‘purpose of visit’ and ‘numbers of visitations’ was presented in Table 7. Most of respondents (79.8%) travelled for leisure. The majority (88.2%) was third visit, followed by second visit (79.6%), first visit (77.9%), and over 3 visits (66.7%). It could be said that the number of visitations differed the purpose of visit.

Table 7: Purpose of visit with number of visitations

Purpose of visit	Number of visitations				Total	Chi-Square	df	Sig
	First visit	Second visit	Third visit	Over 3 visit				
Leisure	77.9%	79.6%	88.2%	66.7%	79.8%	19.842*	9	0.018
Business	10.7%	4.8%	2.9%	12.5%	4.8%			
Health	10.7%	9.1%	7.4%	20.8%	10.0%			
Other	0.8%	6.5%	1.5%	0.0%	3.5%			

The relationship between accommodation and travel companion was tested (see Table 8). The result showed that most (39.3%) stayed in hotel. Most respondents who stayed in hotel alone traveller (51.9%), followed by traveller with partner (38.5%), and traveller with friend (34.4%). It concluded that travel companion differ accommodation.

Table 8: Accommodation with travel companion

Accommodation	Travel companion			Total	Chi-Square	df	Sig
	Friend	Partner	Alone				
Hotel	34.4%	38.5%	51.9%	39.3%	16.698*	8	0.033
Hostel	15.8%	30.8%	17.6%	30.8%			
Guest House	21.1%	30.8%	22.2%	21.8%			
Friend's house	6.8%	0.0%	5.6%	6.3%			
Other	1.8%	0.0%	2.8%	2.0%			

The result of relationship between accommodation and information source about Bangkok was shown in Table 9. Most (39.3%) stayed in hotel. Information from travel agency were used the most (50%), followed by Weibo (43.0%), other (38.3%), and friend and family (37.9%). While information source from WeChat was not found.

Table 9: Accommodation with information source about Bangkok

Accommodation	Information source					Total	Chi-Square	df	Sig
	WeChat	Weibo	Travel agency	Friend and family	Other				
Hotel	0.0%	43.0%	50.0%	37.9%	38.6%	39.3%	33.419*	50	0.006
Hostel	0.0%	17.3%	30.0%	23.0%	20.9%	30.8%			
Guest House	46.7%	12.2%	0.0%	28.8%	20.3%	21.8%			
Friend's house	33.3%	6.3%	0.0%	3.2%	12.0%	6.3%			
Other	0.0%	0.0%	0.0%	4.0%	0.0%	2.0%			

The relationship between expenditure and travel companion was tested (see Table 10). It showed that travel companion differed the level of expenditure. Most (60.0%) spent between \$451-600. Traveller with friend was the most number (64.2%) of this spending rate group, followed by traveller with partner (61.5%), and alone traveller (49.2%).

Table 10: Expenditure with travel companion

Expenditure	Travel companion			Total	Chi-Square	df	Sig
	Friend	Partner	Alone				
Below \$ 450	5.7%	3.7%	0.0%	4.3%	19.248*	6	0.004
\$ 451 - 600	64.2%	61.5%	49.1%	60.0%			
\$ 651 - 750	25.1%	21.1%	45.5%	30.0%			
Over \$ 751	5.0%	7.7%	7.4%	5.8%			

The relationship between night-life attraction and travel companion was tested. The result showed no relation (sig=0.273) which concluded that travel companion did not differ night-life attraction (see Table 11).

Table 11: Night-life attraction with travel companion

Night life attraction	Travel companion			Total	Chi-Square	df	Sig
	Friend	Partner	Alone				
Silom Alley 4	20.8%	23.1%	30.0%	23.5%	9.886*	8	0.273
Silom Alley 2	61.3%	60.2%	53.7%	59.5%			
Sukhumvit Alley 4	7.2%	7.7%	4.6%	6.3%			
Ratchakul Alley 4	6.8%	0.0%	10.2%	7.5%			
Other	3.9%	0.0%	0.9%	3.0%			

The relation between shopping mall and income was tested (see Table 12). The result showed that most (62.0%) shopped at ICON Siam. The tourist who shopped at ICON Siam had income between \$751-1,500 (67.7%), below \$750 (51.7%), and over \$1,501 (47.6%). It suggested that income differed the shopping mall.

Table 12: Shopping mall with income

Shopping mall	Income (monthly)			Total	Chi-Square	df	Sig
	Below \$ 750	\$ 751- 1,500	Over \$ 1,501				
ICON Siam	51.7%	67.7%	47.6%	62.0%	29.941*	8	0.000
Siam Paragon	18.1%	10.3%	9.5%	12.5%			
MBK	6.9%	4.2%	28.6%	6.3%			
Central World	20.7%	17.1%	14.3%	18.0%			
Other	2.6%	0.8%	0.0%	1.3%			

Chinese gay tourist intension behaviour

This part reported the result of intension to revisit. The results were presented by mean, correlation and predictability, and multiple regression analysis of intention tourist behaviour.

The results showed that the overall reason of intention to revisit was at a high level ($\bar{x} = 3.81$). the highest level was 'all round-year availability' ($\bar{x} = 3.97$), followed by 'experience worth spending money' ($\bar{x} = 3.89$) (see Table 13).

Table 13: Reason of intention to revisit

Intention to revisit	\bar{x}	S.D.	Level	Rank
Experience worth spending money	3.88	1.05	High	2
Freedom sexuality identity expression	3.78	1.05	High	4
Feeling of acceptance	3.82	1.03	High	3
Convenience of travelling	3.69	1.13	High	5
All year-round availability	3.97	.79	High	1
Diversity of tourist attraction for LGBT	3.68	.96	High	6
Overall	3.81	.78	High	

All factors were significant correlated at .05 and had positive correlation as followed.

The correlation of Chinese gay tourist behaviours during their visit and intension to revisit were tested with correlation coefficient and multiple regression could be summarized as follows: all three factors (location accommodation, accommodation selection, and destination selection) were highly related to intension to revisit. The results showed the correlation coefficient of location of accommodation at $R = .841$, accommodation selection at $R = .616$, and destination selection $R = .588$ (see Table 14).

Table 14: The correlation and predictability of intention tourist behaviour

Factor	Intention to revisit	Location accommodation	Choice of accommodation	Choice of attraction
Intention to revisit	1			
Location accommodation	.841**	1		
Accommodation selection	.616**	.722**	1	
Destination selection	.588**	.736**	.710**	1

The multiple regression analysis was used to test tourist behaviour towards intension to revisit with the enter method (see Table 15).

Table 15: Multiple regression analysis of intention tourist behaviour

Tourist behaviour	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.676	.136		4.984	.000
Intention to revisit	-.107	.054	-.115	-1.990	.047**
Location of accommodation	.567	.066	.561	8.524	.000**
Accommodation selection	.399	.048	.376	8.316	.000**

R = 0.782 R² = 0.612, Std. Error of the Estimate = 0.455 F = 208.249, P = 0.000

The correlation and predictability of location accommodation, accommodation selection, destination selection was used to predict intention to revisit of Chinese gay tourist at the statistic significant level of .05 ($F = 322.579$, $p < .05$). The three predictors were able to account for 71.0% ($R = 0.842$ $R^2 = 0.710$) of the variance. In addition, the regression coefficient of those factors was 0.842; location accommodation ($\beta = .867$, $\text{Sig} = 0.000$), and destination selection ($\beta = -.086$, $\text{Sig} = 0.047$). However, the regression coefficient of destination selection had no effect on intention to revisit ($\beta = -.051$, $\text{Sig} = 0.230$). It concluded that location accommodation, and accommodation selection had an effect to intention to revisit.

V. DISCUSSIONS

The findings of the research were discussed. The demographic of respondents showed that most of them were at their 20s-40s. The age group should be targeted for gay/LGBT tourist from China. They were likely to have higher mobility to travel and afford the international travel. The findings showed that the highest purpose of visit was for leisure. Interestingly, the health purpose was occurred at 10%. Thailand was also known for medical and aesthetic tourism. Both niche tourism could be considered market together. Interestingly, the number of visitations revealed that most were revisit tourist on their second visit, close number to the first visit tourist. It assumed that Thailand was attractive for both new visitors and repeat visitors. Most of them travelled with friend and alone, less than 5% travelled with their partner. The revisit behaviour was discussed later in the below section.

The behaviour during their visit included location of accommodation, accommodation selection, and destination selection. Most respondents have chosen the location of accommodation at Haui-kwang, Silom, and Bangrak. On the same way, their reason of accommodation selection was worth of money and being close to LGBT attraction. It reflected the literature that perceived of value influenced revisit intention. The accommodation was chosen for worth of money, close to LGBT attraction, and cleanliness. The first and third reason were not different to heterosexuality. Close to LGBT attraction was found important. Silom was known

for its popular night-life area for LGBT for decades. It concluded that the location near LGBT attraction was important for decision making on accommodation selection for LGBT. Arguably, LGBT friendliness influenced the decision on destination [8], it was not prior for accommodation selection. Further, the findings showed that most respondent relied on information via well-known people, followed by social media reviews. The growth of using online platform could increase both the number of website and platform and users. Mass media was confirmed that play important part in constitution sexual identity for LGBT. However, mass media was not great to influence decision making on destination.

The findings of spending behaviour of the respondents showed that expenditure was correlated with travel companion. Traveling alone, with friend, and with partner may differ the spending behaviour. It showed that respondents who travelled alone and with partner were likely to stay in a hotel rather than hostel or guesthouse. Further, the findings of expenditure showed that respondents who travelled with partner spent at over \$751 at the highest among other groups. Considered on shopping mall selection, ICON Siam was the highest among others. It was one of the high-end shopping complex in Bangkok. It reflected that Chinese gay tourist preferred a little luxury place and service on their holiday.

The findings revealed that over 60% of respondent were repeat visitors to Bangkok. It was interesting number of high revisitations. The top reason of their revisit was not different to heterosexual, all year availability and experience worth the money. However, the reasons directly related to gay/LGBT tourist behaviour were 'feeling of acceptance', 'freedom sexuality identity expression', and 'diversity of tourist attraction for LGBT' came at the third, the fourth, and the fifth place. They were all rated at a high level. It could not deny that Chinese gay men considered reason related to LGBT on their decision making of revisit. It could lead to conclusion that they were loyal customer.

VI. RECOMMENDATIONS

A. Recommendations for Practices

1. The results of this research can be used for LGBT Chinese tourist market plan or similar background of demographic.
2. Destination Marketing Organization (DMO) can use the results of this research to plan on developing digital marketing communication focusing on LGBT social media platform.

B. Recommendations for Further Research

1. The samples in this study were only gay men who were more noticeable. For the next research, lesbian, bisexual, and

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transgender should be included. Finding the gatekeeper is vitally important to gain more respondents.

2. The research has employed quantitative research approach. The next research should consider qualitative research method providing deeper understanding among LGBT.

3. The influence of well-known people was found important to the decision-making behaviour. Although the research did not classify well-known people from well-known LGBT people. The next research should investigate deeper in this aspect.

VII. CONCLUSION

It concluded that the research has achieved the objective of study. The findings and discussion showed that it was the positive significant correlated of demographic and Chinese gay men tourist behaviour in some respects. The number of visitations and travel companion may differ their behaviour during their visit. Lastly, the reason for revisit revealed that the feeling of acceptance and freedom of sexual identity expression play important part in their decision making to revisit. It could be said that Bangkok was potentially able to market as LGBT city. Due to its diversity of attractions for both LGBT and heterosexuality and enhanced with its LGBT friendliness

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The Development of Educational Institution Management Strategies Affecting the Quality of Secondary Education Students under the Office of the Secondary Education Service Area in the Eastern Region

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Abstract— This research article's objectives are to develop an educational institution management strategy model to investigate the suitability of the institutional management strategy model development and to develop a manual for implementing an educational institution management strategy that affects the quality of people, studying a secondary education under the Secondary Education Service Area Office in the Eastern Region by using the combined research method. The research instruments consisted of a semi-structured questionnaire, a meeting record, a group of experts, an assessment form. The appropriateness of the statistical manual used in this research were percentage, mean, standard deviation, content analysis.

The results of the research revealed that the development of an educational institution management strategy that affects the quality of the secondary school students under the Office of the Secondary Education Service Area in the Eastern Region, there are 5 strategies as follows: 1. Development of a strategy for school management in organizing an environment conducive to learning. 2. Development of an institutional management strategy for promoting proactive learning 3. Development of an institutional management strategy model in enhancing leadership for teachers 4. Development of a management strategy model 5. Development of a strategy for the overall application of schools was at the highest level by developing a strategy model of the instructional manual. Developing the model of educational institution management strategy is overall appropriate at a very good level.

Keywords— strategy model development, institutional management, learner quality; Educational management strategies

I. INTRODUCTION

The changing trend of the world society in terms of technological advancement, globalization, economic crises, political and democratic governance, constitutional law and health service reforms have resulted in changes in the conditions of the country. The state of education management in the country has changed both in terms of targeted educational philosophy as well as the objectives of the course of teaching and learning management, teaching evaluation, supervision and personnel development, educational management model management roles of administrators and teacher personnel. Education administration tends to be in the same way that business administration aims to seriously focus on efficiency and effectiveness, especially the changes that

will affect the management of basic education as education is organized to prepare resources. The country has entered the era of change, which is to raise the quality of the population in the country more, affecting the country's future development, especially the teaching and learning management of effective teachers that require a variety of techniques and a comprehensive approach that covers and meets the needs of learners by aiming for learners to learn to their full potential. Having knowledge, abilities and desirable characteristics, the aims and principles of educational management in Article 6 must be stated in order to develop Thai people to be complete human beings in physical, mental, intellectual, knowledge, and morality, with ethics and culture to live happily with others. The Ministry of Education has set goals in the second round of educational reforms from 2009–2018 with a focus on implementing them. The concrete quality is the creation of

new qualities in various fields, focusing on the quality development of modern Thai people to have the habit of learning from early childhood to learn on their own and continue to seek knowledge throughout life according to the theory of change management in basic education institutions. There are prominent theories related to change management and can be applied to change in education [1]. It describes the process of transformation of Theory E and Theory O[9]. Theory E is a rapid transformation of goals from back-to-back, emphasizing a top-down shift in values, employing a large number of external advisors. Theory O focuses on changing goals to achieve higher performance goals, emphasizing a powerful culture and competent and high-performing personnel. Hamlin (2001) states that most of the changes are encompassing dimensions that are effectual in different parts of the organization. They may occur concurrently, intermix or continue, depending on the context of each educational institution. However, management theories and concepts are known to say that “no one type of management approach is the best”. (No one best way) In practice, choosing the best form. The most appropriate to the situation at that time and new management styles are always being developed and developed. Therefore, a good management style must show a structural relationship between the leading variables. To predict the consequences that can be examined with empirical data clearly describe the structure or mechanism of rational relationship of the matter being done, leading to the creation of new concepts or relationships or expanding the body. Knowledge is consistent with the theory of the subject to use the model used with teachers or teachers as the most important person in the educational management process because the essence of educational management is the teaching and learning activities that occur. It depends on the relationship between the teacher and the learner. In order for a teacher to be a person who can develop quality learners, teachers must continually learn and develop themselves by adjusting to two new roles: 1) Teachers as primary teaching practitioners 2) Teachers as classroom action researchers, which are complementary roles, teachers need to develop curricula, teaching methods, and motivate learners to create curiosity [10] When teachers are the personnel who play an important role in the educational management process. Teacher quality is therefore important because quality teachers affect quality learners. Teachers, therefore, play a very important role in the development of people to be human beings that are complete in physical, mental, intellectual, knowledge and morality, having ethics and culture in living, able to live with others happily. Teachers are an important factor affecting the change in learning of learners. Therefore, professional

standards of teachers, faculty and education personnel are promoted and teacher development. Faculty and Educational Personnel Continuing as the central organization for personnel management of teachers and education personnel, therefore, the competence in the performance quality of teachers and education personnel consists of 1) competencies that the main focus is on good service achievement, self-development and teamwork, and 2) line competence is learning design that is about learner development and classroom management, consisting of 3 indicators: 1) teaching and learning atmosphere is flexible classroom arrangement; There are supervision boards or academic corners to encourage students to help support good interactions between teachers and students and learners with learners. 2) The preparation of classroom information is the classification of necessary information. and classroom documents, and 3) supervising the classroom, creating an agreement to coexist and supervise the practice of the learners to be in accordance with the agreement and to be able to adjust the learner's behavior to learn together smoothly. It is used as a criterion and method for government teachers and educational personnel to have and promote academic standing, which teachers request to have and promote academic standing must pass an assessment of the quality of performance. Therefore, the role of teachers is the most important in class management. Learning consists of two important activities: 1) instructional management aims to enable children to learn according to the objectives 2) classroom management aims to create a learning atmosphere [3]

In spite of the change of management towards excellence in educational institutions, the process of operation of educational institutions based on people, which are school administrators and all personnel relies on various resources in order for the operation of educational institutions to achieve their objectives resulting in outstanding results of superior quality than ordinary, they can be a role model for other educational institutions. They can recognize the importance of classroom management that affects the quality of learners. However, many teachers have never received any training in classroom management or conflict resolution, relying solely on their own school experiences or on the basis of their beliefs. According to the report of the Office of the Education Council Secretariat (2009), it was found that the transformation factors for success is a factor that promotes successful change management. The main factors are executive competency, work styles and personnel since the development of teacher competency in classroom management in schools is not clear and does not meet the needs of teachers as they should, there is only a manual for

teacher competency assessment at the Office of the Education Commission. The basis was created to be used as an assessment of teachers in each subject group and for annual performance assessment only. However, the manuals are lacking in details on the methods and procedures for acquiring each indicator, corresponding to the research group of the Research Office. As a whole, it was found that teacher development still lacks an effective development system [4]. In addition, problems with classroom management were found as follows: 1.) It was found that the administrators did not create awareness for teachers to focus on classroom management and also did not give importance to set the atmosphere and environment in the classroom that facilitated teaching and the ability to manage in the classroom. It can be seen from the fact that the teacher cannot control the class to manage the teaching smoothly. They are unable to manage or resolve students with undesirable behaviors [7]. Teachers also have beliefs and practices that have been used to treat students, such as scolding and punishing students. Teachers focus on teaching complete content according to the curriculum. The teacher thinks that every problem is caused by the students without considering himself. Teachers are assigned a number of responsibilities. This leaves little time for classroom management, and teachers have also found misconceptions about classroom management, for example: 1) They understand only the bending 2) Class management is the sole responsibility of the teachers 3) Class management is the only management of the classes in the classroom. 4) A person who has already taken a teacher's course must be able to manage the classroom. 5) Classroom management increases the burden on teachers. 6) It has been teaching for many years. I don't see the need to organize classes to make it more difficult [8] Based on the aforementioned issues and the epidemic situation during the epidemic situation of the Coronavirus Disease 2019 (COVID-19) making the style of classroom management in the academic year 2020, according to the disease control situation, the disease control agencies and disease control agencies must issue measures to control the disease. This unpredictable rapid change prompts the need to review the development of educational institution management strategies that are sent effects on the quality of secondary school learners under the Office of Secondary Education Service Areas in the Eastern Region, therefore, it is imperative to have a quality management strategy to prepare clearly in classroom management to be used as a guideline for improving the quality of learners in order to achieve the objectives of good and effective education management.

II. RESEARCH OBJECTIVES

The objectives of this research article were as follows:

1. To develop the educational institution management strategies that affect the quality of secondary school learners under the Office of Secondary Education Service Areas in the Eastern Region
2. To examine the appropriateness of the development of educational institution management strategies that affect the quality of secondary school learners. Under the Office of Secondary Education Service Area in the east
3. To develop a manual on the use of educational management strategies that affect the quality of secondary school learners under the Office of Secondary Education Service Area in the Eastern Region

III. RESEARCH METHOD

Research on the development of educational institution management strategies that affect the quality of secondary school learners under the Office of Secondary Education Service Areas in the Eastern Region is a mixed method research, divided into 3 phases as follows:

Phase 1 There are two research steps for developing a Strategic Model for Educational Institution Management to draft a classroom management strategy that affects learner quality for secondary schools under the Secondary Education Service Area Office in the east as follows:

1) Step 1: Regarding the development of an educational institution management strategy model to draft a classroom management strategy that affects learner quality for secondary school students, the researcher studied relevant documents and research papers in order to obtain the figure development elements. Educational Institution Management Strategies Model for drafting classroom management strategies affect learner quality for secondary school by interviewing 9 experts including the multi-case study from model school, received the prestigious Obec Awards for Class Management at the National Academic Year 2020 as well as making interviews on classroom management strategies that affect student quality for secondary school under the Office of Secondary Education Service Areas in the Eastern Region of 20 schools. The tool used was a semi-structured interview.

2) Step 2: Regarding the development of an educational institution management strategy model to draft a classroom management strategy that affects learner quality for secondary school students, the researchers used the expert's group, meeting technique from 11 experts, obtained by Purposive Sampling to determine the Index of Item-Objective Congruence (IOC) tool used as an expert group meeting recorder.

Phase 2: Regarding the examination of the appropriateness of the development of an educational institution management strategy model to draft a classroom management strategy that

affects the quality of learners for secondary schools, the researchers determined the appropriateness of the strategy's implementation and class management affecting learner quality for secondary schools under the Office of Secondary Education Service Areas in the Eastern Region by asking for opinions of a sample group consisting of school administrators in a total of 350 teachers, 150 teachers, a total of 500 students. The sample size was calculated using the Taro Yamane method. The instrument used was a 5-level estimation scale questionnaire.

Phase 3: Regarding the creation of a manual for implementing a model of educational institution management strategy that affects the quality of secondary school learners under the Office of Secondary Education Service Areas in the Eastern Region to assess and improve the manual for the development of the management strategy model. Educational institutions affecting the quality of secondary school learners under the Office of Secondary Education Service Areas in the Eastern Region, it was done by 9 experts and a tool used to assess the suitability of a strategic partner.

IV. RESEARCH RESULTS

1. With regard to the results of the development of educational institutions management strategies that affect the quality of secondary school learners under the Office of Secondary Education Service Areas in the Eastern Region, they were found that the Education that affected the quality of secondary school learners under the Office of Secondary Education Service Areas in the Eastern Region had 5 strategies as follows: 1. Developing a model of educational institution management strategy in setting up an environment conducive to learning. 2. Developing an educational institution management strategy to promote proactive learning 3. Developing an educational institution management strategy to enhance leadership for teachers 4. Developing an educational institution management strategy in Participation in classroom management 5. Developing educational institution management strategies. The result was appropriate for overall implementation at the highest level. 2. With regard to the results of the assessment of the appropriateness of the development of educational institution management strategies that affect the quality of secondary school learners, the results showed that the model of educational institution management strategies affecting the quality of secondary school learners under the Secondary Education Service Area Office in the eastern region had the overall suitability at the most level ($\bar{X} = 4.81, SD = 0.34$). When considering each strategy, the averages were as follows: 1. Development of educational institution management strategies in setting up an environment

conducive to learning ($\bar{X} = 4.87, SD = 0.45$) 2. Development of educational institution management strategies to promote proactive learning ($\bar{X} = 4.56, SD = 0.64$) 3. Development of educational institution management strategies to supplement Build leadership for teachers ($\bar{X} = 4.83, SD = 0.34$) 4. Developing a strategic model for school management in participating in classroom management ($\bar{X} = 4.26, SD = 0.34$) 5. Developing a strategy model. The school management is appropriate to use ($\bar{X} = 4.67, SD = 0.29$) 3. With regard to the results of the development of a manual for the use of educational institution management strategies that affect the quality of secondary school learners under the Office of Secondary Education Service Areas in the Eastern Region, the manual for the development of educational institution management strategies that affect the quality of secondary school learners under the Office of Secondary Education Service Areas in the Eastern Region had overall appropriateness at a high level ($\bar{X} = 4.77, SD = 0.54$)

V. NEW KNOWLEDGE

Development of educational institution management strategies that affect learner quality secondary school Under the Office of Secondary Education Service Area in the east

1. Development of a strategic model for educational institution management in setting up an environment conducive to learning.
 - 1.1 Management of physical education institutions that facilitate learning
 - 1.2 Management and administration of academic institutions that are conducive to learning
 - 1.3 Management of social educational institutions that are conducive to learning
 - 1.4 Management of educational institutions in the field of psychology that facilitates learning
2. Development of educational institution management strategies to promote proactive learning
 - 2.1 Promoting fundamental factors in the form of a proactive learning institution management strategy
 - 2.2 The use of strategies in the form of educational institution management strategies in proactive learning
 - 2.3 The use of proactive learning strategies for educational institution management strategies
3. Developing a Strategic Model for School Management in Enhancement of Leadership for Teachers
 - 3.1 Promotion of educational institution management strategies for enhancing professionalism
 - 3.2 Promotion of educational institution management strategies for enhancing good personality

- 3.3 Focusing on the development of educational institution management strategies to enhance achievement
- 3.4 Promotion of educational institution management strategies for enhancing leadership change
- 4. Developing a Strategic Model for School Management for Participation in Classroom Management
 - 4.1 Participation in educational management strategies in classroom management
 - 4.2 Participation in educational management strategies in classroom management
 - 4.3 Participation in educational management strategies in monitoring management class
 - 4.4 Participation in educational management strategies in developing the environment in class management
- 5. The development of educational institution management strategies is appropriate for implementation.
 - 5.1 Promoting the development of educational management strategies to be used in academy
 - 5.2 Promoting the development of strategies for use in educational management academy
 - 5.3 Promoting the management of educational institution management in the implementation of management that conducive to learning

The results of research on the development of educational institution management strategies that affect learner quality secondary school Under the Office of Secondary Education Service Area In the eastern region, 5 strategies, 18 activities, educational institutions or stakeholders in education management can be used as guidelines for classroom management operations. To increase the efficiency of management that will affect the quality of learners. By doing the following Determine vision, mission, objectives, and strategies (development of educational institution management strategies that affect the quality of secondary school learners Under the Office of Secondary Education Service Area in the East) Work plans/projects Activities (each sub-activity of classroom management strategies that affect the quality of secondary school learners Under the Office of Secondary Education Service Area in the eastern region) Indicators (item-specific questions, but the development of educational institution management strategies that affect the quality of secondary school learners Under the Office of Secondary Education Service Area in the eastern region) as a guideline for development by meeting to clarify guidelines for developing educational institutions in the form of a committee

consistent with research Research results of Sanit Cheychum (2000) on management approaches for excellence. of private educational institutions, which found that the administration for excellence Structural management is at the very first level of the component and in the sub-component. As for the results of the study on the problems of transition management towards excellence in basic education institutions, consistent with the research report on the condition and problems of the administration and management of basic education of educational institutions in Thailand (Theera Runcharoen, 2002) found that the administration and management of education had problems with budget and building obstacles, namely, the budget received was insufficient. to operate as planned and educational institutions are unable to provide additional budgets beyond the current budget and income and research results of Ratwadee Channamsai (2009) on factors affecting resistance to changes in the organization of private companies in Bangkok found that when the organization changes in technology And the management's operational goals will directly and openly influence anti-change behavior.

VI. DISCUSS THE RESULTS OF THE RESEARCH

From the research findings on the development of educational institution management strategies that affect the quality of secondary school learners under the Office of Secondary Education Service Areas in the Eastern Region, there are issues that are discussed as follows:

1. Development of educational institution management strategies that affect the quality of secondary school learners under the Office of Secondary Education Service Areas in the Eastern Region. The quality of secondary school learners has 5 strategies and 18 activities because the development of educational institution management strategies that affect the quality of secondary school learners under the Office of Secondary Education Service Areas in the Eastern Region plays an important role in stimulating the quality of secondary school learners. The learning of the learners helps create a good atmosphere for learning. as well as enhancing desirable characteristics in terms of knowledge, skills and good attitudes during learning in accordance with research [5] Regarding the development of a decentralized education management model in basic education institutions in accordance with the guidelines of the National Education Act B.E. Basic education consists of participation strategies, task assignment strategies, personnel development strategies. Strategies for Supervision and Follow-up Technology strategy resource mobilization strategy coordination strategy Integration Strategy and management strategies that focus on quality throughout the organization

2. Results of the assessment of the appropriateness of the development of educational institution management strategies that affect the quality of secondary school learners Under the Office of Secondary Education Service Areas in the Eastern Region, the results showed that the development of educational institution management strategies that affect the quality of secondary school students is most appropriate overall This is because of the study of documents and related research, interviews with multi-case study experts, schools that have received the prestigious Obec Awards for Class Management and Management at the national level. Academic Year 2020 Expert Group Meeting This is the development of a strategy that creates a process of improvement and ensures that Strategies that can be applied in classroom management can affect the quality of learners. In line with the concept of Barthol[2], the change of educational institutions is a change in the organizational structure or design of a new job, there is an adjustment of the work process by using technology and people development in terms of attitudes, expectations. Perceived and operational behavior by creating a common meaning of the organization as an organizational culture.

3. The results of the development of a manual for the use of the educational management strategy model that affects the quality of secondary school learners under the Office of Secondary Education Service Areas in the Eastern Region The management of educational institutions affecting the quality of secondary school learners under the Office of Secondary Education Service Areas in the Eastern Region had overall appropriateness at a very good level. This is because the manual has been reviewed by a panel of experts. and assess the suitability of use by 9 experts and then be revised, which can be used as a guideline for school management that affects the quality of secondary school learners under the Office of Secondary Education Service Areas in the Eastern Region, which affects the quality of learners effectively and consistent with research [6], a manual on the use of school risk management indicators to expand educational opportunities. Under the Office of the Basic Education Commission in the Northeast, the average level of suitability was at a high level. The indicator manual was audited by an expert committee. And assess the suitability of use by 7 experts and then bring it to improve and can be used as a guideline for assessing the risk management of educational institutions.

VII. CONCLUSION

The researcher has summarized the research results into a body of knowledge. From the study of the development of educational institution management strategies that affect the

quality of secondary school learners under the Secondary Education Service Area Office in the east and in the situation of the Covid-19 epidemic, there are various forms of education management review. However, it is important to manage the schools that affect the quality of secondary school learners under the Office of Secondary Education Service Areas in the Eastern Region is that effective and effective classroom management must be implemented according to strategies. 1. Developing of educational institution management strategies in setting up an environment conducive to learning 2. Developing of educational institution management strategies to promote proactive learning 3. Developing a model Educational institution management strategy for enhancing leadership for teachers 4. Developing an educational institution management strategy for participation in classroom management 5. Developing an educational institution management strategy suitable for use

Feedback

From research results, the researcher has the following suggestions as follows:

1. Recommendations from research
 - 1.1 Educational institutions and related agencies can adopt the development of educational institution management strategies that affect the quality of secondary school learners under the Office of Secondary Education Service Areas in the Eastern Region to use in strategic planning, action plans that are consistent with the context of the school, the development of a change management model for excellence in basic education institutions of the state.
2. Suggestions for the next research
 - 2.1 The next research should focus the condition of management of transformation towards excellence in educational research establishments and the development of educational institution management strategies that affect the quality of secondary school learners under the Office of Secondary Education Service Areas in the Eastern Region

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Development of a game-based learning management model to promote the development of SMEs-based business management process concepts for small business groups

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Abstract— The research on developing a game-based learning management model (Game based learning) to promote the development of conceptual management processes based on the SMEs model for small business groups is aimed at studying the development of learning models. It teaches innovative teaching and learning methods through game-based learning as well as to study academic achievement and opinions of doctoral students in management in education, concept development, processes, Management according to the business model SMEs for small business groups of students who study with game-based learning and teaching, using quantitative research methods using tools to collect data through Population questionnaires were doctoral students in the field of management. College of Innovation Management (RCIM), Rajamangala University of Technology Rattanakosin that studies the concept of developing business management process concepts according to the SMEs model for small business groups Creatively, 15 students in the first semester of the academic year 2020.

The results of the research showed that the development of the teaching and learning model for innovation in teaching and learning methods using game-based learning in the whole was at the highest level when considered on a sequential basis. In descending order of mean, it was found that the students developed the concept of management process according to the model business. SMEs for the Small Business Group in Practice Management (Do) were the highest for their opinions on student achievement as a whole, at the highest level when considered individually, ranked from average to highest Little found that the students had the most opinion on intellectual skills and the opinions of the students who studied with Game-based learning in the overall level. The highest, when considered in descending order, average descending, found that students had the most opinion on creativity

Keywords— game-based learning, business management processes, small business

I. INTRODUCTION

New concepts have begun to influence the management of education, especially with the current educational reforms, with the view that each learner is different and has its own uniqueness. And learning management must be adapted to take into account such characteristics. Rapid changes create anxiety and insecurity among teachers, which can be a challenge to learn new strategies. As an education leader, teachers must agree to learn and solve problems that may arise

from new theories that consciously enter. Teachers must be examples of those who have lifelong learning. To learn how to think outside the box and develop more, the teacher's job is not just to refine the status quo. If it will cause lasting change in the school system We should seek truth from many dimensions. As human beings, we have many complex aspects of life that cannot be limited to one form. Humans like the truth but live on the guise of learning from a variety of sources. Changing knowledge about such changes will lead to the improvement of their human skills, and teachers must learn to work with more diverse communities and see parents as a source of learning. and support rather than intervention,

which is considered to increase the efficiency of teaching and learning and is beneficial to the learning of students by the development of teaching innovation projects that can be considered a new teaching method or development Adapted from the original teaching management method, resulting in more effective teaching and learning management.

Learners have learning outcomes according to the course objectives. There are 3 types of teaching innovations which are innovations in all forms of teaching methods, innovations in teaching media. And finally, innovations in measurement and evaluation by this innovation of teaching and learning. Instructors will use innovative methods of teaching and learning with Game based learning or GBL, which is an innovative new teaching media that is designed and inserted into the lesson content. In the game, students participate in hands-on learning and practice in learning by themselves. While playing, learners will gain skills and knowledge from the lesson content while playing. Efforts to think of new teaching methods, new teaching materials to cover the gaps in learning limitations, learner perception, learner motivation, learner curiosity. The problem that is often found in most students is that learning is boring and not fun, having to read a lot of books and do not want to study. There are other activities that are more interesting [3], where these problems are a challenge for teachers who need to focus more on teaching and have to adjust teaching styles and techniques to suit their learners. By taking action as well as inviting students to collaborate with teachers, teachers will leverage this opportunity to observe their work and share experiences they have discovered together. This kind of learning will help teachers to make the leap from theory to practice successfully because modern teaching not only teaches students but also cares and builds relationships. With them, with the process of learning through problem solving an important step, teachers encourage learners to ask questions and examine their questions. This approach will make the course more meaningful. The lesson doesn't have to end with the right answer, but it should be an answer that can extend to the student's further questioning because modern thinking views students' ideas as valuable. Students will use them to develop their own meanings instead of transferring knowledge from teachers. It emphasizes critical thinking rather than factual information [2].

For that reason, the researcher believes that learning activities should be meaningful and interesting to students, they should be allowed to create, develop and apply additional knowledge or skills, they should have options and be able to. Given the opportunity to be planners and decision-makers, activities should be created that allow children to utilize their knowledge in new situations. Children should be encouraged

to find answers to their own questions by using analytics to foster entrepreneurship and ideas in the management of exhibitions and events. For students of exhibition and event management to be a model for other courses and to promote the development of business management process concepts according to the SMEs model. For business groups, the size corresponds to the learning objectives for students in the 21st century, consistent with the learning outcomes according to the National Higher Education Qualifications Framework. (TQF) of the development of students' learning outcomes in 5 areas: 1. Morality and ethics 2. Knowledge of SMEs business model 3. Skills in SMEs business model 4. Skills in relationship between Person and responsibility5. In terms of numerical analysis skills, communication, and using information technology, Game Based Learning is a learning medium that will help learners learn both at the level of memory and understanding. It is also interesting to motivate students to want to learn. To create a sense of fun for learners and to engage learners in the learning process until self-learning occurs, the designed game should be tested several times to ensure that the game retains its content. All important, and create fun and engaging for learners.

II. RESEARCH OBJECTIVES

The objectives of this research article were

1. To study the development of a game-based learning management model to promote the development of the concept of business management process according to the SMEs model for small businesses
2. To study the opinions of doctoral students Department of Management in the study of conceptual development of management processes according to SMEs business model for small business groups Learning by teaching and learning by using game as a base (Game based learning)
3. To study the academic achievement of doctoral students Department of Management in the study of conceptual development of management processes according to SMEs business model for small business groups Learning by teaching and learning by using game as a base (Game based learning)

III. RESEARCH METHOD

Step 1: Study on the content of the theoretical concept documents. From the literature review and related research, the researcher has a conceptual framework consisting of Learning Theory/Approach, Game based learning concepts and theories, 21st century skills concepts and theories, Concepts and theories on 4 Cs, Theoretical concepts of PDCA and the development of students' learning and Articles and related research are in accordance with the objectives.

Step 2 Population and Sample

The population includes doctoral students. Management College of Management Innovation Rajamangala University of Technology Rattanakosin who study the concept of developing the concept of business management process according to the SMEs model for small business groups creatively, 10 students in the first semester of the academic year 2563

Step 3 Tools and methods used in the study

This research aims to study the innovative teaching-learning methods of teaching-learning methods using game-based learning, as well as to study the learning achievements and opinions of degree students. major Management College of Management Innovation Rajamangala University of Technology Rattanakosin who study the concept of developing the concept of business management process according to the SMEs model for small business groups Creatively, 10 students in the first semester of Academic Year 2020 studied with game-based learning management using quantitative research methods. (Quantitative Research) by using tools to collect data through questionnaires.

Step 4 Collecting Information

Data collection for use in this research consisted of primary and secondary data. By collecting information that meets the objectives of this study.

- 1) Primary Data Collection The study's primary data was collected by using a questionnaire.
- 2) Secondary data collection (Secondary Data) The students studied the concepts and theories related to the game-based learning management model to promote entrepreneurship and concepts in the field of game-based learning. Management of exhibitions and events for PhD students Management College of Management Innovation Rajamangala University of Technology Rattanakosin

Step 5 Data Analysis

- 1) Quantitative data
- 2) Pearson Product Moment Correlation was used to find the relationship of personal characteristics, i.e. age, gender, analysis using basic statistical values such as mean, standard deviation, and percentage and average GPA, that was related to the opinions of students towards the assessment of the learning management model by using games. Is it a game-based learning base?

IV. RESEARCH RESULTS

Objective 1 was to study the development of a game-based learning management model to promote the development of the concept of business management process according to the SMEs model for small business groups. Learn to teach an

innovative method of teaching and learning with game-based learning, which consists of 5 steps as follows:

Step 1: Determine the learning objectives. Clear content boundaries will allow you to choose the game that is more suitable for the teaching style. Before using the game should consider the following.

1) Intervention If the learners do not understand the content of the lesson of the development of game-based learning management model (Game based learning), the teacher may try to use the game to fix the deficiencies. The selected game should be appropriate for the learner in terms of content and learning style of the learner.

2) Game enrichment should be diverse and create challenges for learners to learn new methods of developing a game-based learning management model.

3) Reinforcement The game has a variety of features in addition to motivating students. It is also considered to reinforce the content in the lessons of developing a game-based learning management model as well as creating interactions with learners. the aforementioned This will result in the teaching process in accordance with the needs of teachers and students.

Step 2 Experiment with the game once the game is appropriate for the learners. Instructors need to bring the game to a trial to learn the following information:

1) The development of a game-based learning management model of the teacher's role is appropriate. He is the one who encourages students to experiment, practice and praise them when they do the right thing to boost their morale.

2) Developing a game-based learning management model of usability should be easy to use, challenging.

3) Developing a game-based learning management model of engaging content and presentation methods will determine student engagement.

4) Game-based learning management model development of content types to support various learning styles. Games should have different types of content

5) Development of a game-based learning management model that is a content level to identify problem areas and various aptitudes. Games should use different teaching principles to adapt the content to each player. Developing a game-based learning model following the steps mentioned above will help them decide if the game is appropriate and consistent with the learning goals set. hold

Step 3: Study the students' opinions towards the development of a game-based learning management model. When the game is used in the experiment, the satisfaction of the learners must be checked from the questionnaire. satisfaction to see suitability in various aspects of the game according to user feedback

Step 4: Improve and develop a game-based learning management model from game-based experimentation. Instructors must bring such defects to be corrected in accordance with learning goals and learners.

Step 5: Assess the development of a game-based learning management model by collecting data from the experimental games. to be compared with the assessment criteria set.



Figure 1 Method for developing a game-based learning management model to promote the development of a 5-step business management process concept according to the SMEs model

Objective 2 is to study the opinions of doctoral students. Department of Management in the study of conceptual development of management processes according to SMEs business model for small business groups who studied with game-based learning and teaching management. From the analysis of general data of doctoral students Management College of Management Innovation Rajamangala University of Technology Rattanakosin who study the concept of developing the concept of business management process according to the SMEs model for small business groups Creatively, 10 students in the first semester of Academic Year 2020 had opinions on the game-based learning management model to promote the concept of SMEs business management process for small businesses. In the first semester of the academic year 2020, in the first part, it was found that most of the students were 6 males and 4 females. small Creatively, 10 students in the first semester of the 2020 academic year had mean and standard deviation of student opinions towards learning management model in the study of conceptual development of management process according to SMEs business model for small business groups. Game based learning was used in the overall picture as shown in Table 1. Table 1 Mean and standard deviation of student opinions towards learning management model in the study of conceptual development of management process according to SMEs business model for small business groups using game as a base (Game based learning) in the overall picture

Game-based learning management model (Game based learning)	comment level			
	μ	σ	level	sequence
1. Planning	4.56	0.46	the most	2
2. Practice (Do)	4.58	0.43	the most	1
3. Inspection (Check)	4.49	0.46	the most	4
4. Proper action (Act)	4.57	0.41	the most	3
Overview	4.45	0.43	the most	

From Table 1, it was found that the opinions of students towards the learning management model in the study of the conceptual development of the SMEs business management process for small business groups Game based learning in overall was at the highest level ($\mu = 4.45$).

The results of the data analysis of students' opinions towards the learning management model in the study of the conceptual development of the management process according to the SMEs business model for small business groups Game based learning was based on the mean and standard deviation of the opinions of the students who studied with Game based learning in the overall picture as shown. can be found in table 2.

Table 2 Mean and standard deviation of student opinions towards learning management model in the study of conceptual development of management process according to SMEs business model for small business groups using game as a base (Game based learning) in the overall picture

Teaching and learning by using games as a base (Game based learning)	comment level			
	μ	σ	degree	order
1. Creativity	4.57	0.47	the most	1
2. The ability to work with others (Collaboration)	4.53	0.41	the most	2
3. Effective communication (Communication)	4.51	0.42	the most	3
4. Critical Thinking and Problem-Solving	4.48	0.45	the most	4
Included	4.45	0.37	the most	

From Table 2, it was found that the mean and standard deviation of student opinions towards learning management style in the study of conceptual development of management process according to SMEs business model for small business groups by using games as a base (Game based learning) in the overall picture at a high level ($\mu = 4.45$)

Objective 3 is to study the academic achievement of doctoral students. Department of Management in the study of conceptual development of management processes according to SMEs business model for small business groups who studied with game-based learning and teaching management. The opinions on the student's overall academic achievement were at the highest level ($\mu = 4.45$) as shown in Table 3.

Table 3 Mean and Standard Deviation of Educational Perspectives for Doctoral Students Department of Management in the study of conceptual development of management processes according to SMEs business model

for small business groups that studied with game-based learning management in the overall picture

Evaluation of academic achievement of doctoral students Management field in the study of conceptual development of management processes according to SMEs business model	comment level			
	μ	σ	degree	order
1. Moral and ethical aspects	4.12	0.46	very	5
2. Knowledge of SMEs business model	4.16	0.54	very	4
3. SMEs business skills	4.45	0.51	the most	1
4. Interpersonal Skills and Responsibilities	4.37	0.43	the most	2
5. Numerical analysis, communication and information technology skills	4.15	0.52	very	3
included	4.45	0.45	the most	

It was also found that the correlation coefficient between opinions on academic achievement of doctoral students Department of Management in the study of conceptual development of management processes according to SMEs business model for small business groups Those who studied with game-based learning management were related to the average grade of the students. It was statistically significant at the 0.05 level and the correlation coefficient between the opinions of the doctoral students. Department of Management in the study of conceptual development of management processes according to SMEs business model for small business groups Those who studied with game-based learning management were significantly correlated with the students' understanding of the learning process according to the SMEs business management process for small business groups. statistically at the 0.05 level as well.

V. DISCUSS THE RESULTS

The results of the research objectives that 1) To study the development of a game-based learning management model to promote the development of the concept of business management process according to the SMEs model for small businesses, it was found that the innovative teaching and learning method The method of teaching and learning with game-based learning consists of 5 steps, consisting of step 1, setting learning objectives, clearly defining content boundaries. It will help to choose a game that is more suitable for the teaching style. Before using the game should consider the following: 1) Intervention if the learners do not understand the content in the lesson of developing a game-based learning management model. (Game based learning) Instructors may try to use games to fix deficiencies. The selected games should be suitable for the learners both in terms of content and learning style of the learners. 2) Enrichment The games should be diverse and challenging. with learners in learning new methods of developing a game-based learning management model 3) Reinforcement. The game has a variety of features. In addition to motivating

students, it is also considered to reinforce the content in the lesson of developing a game-based learning management model, as well as creating interactions. With the learners as well, which if the teacher manages the teaching to meet the aforementioned will result in the teaching process in accordance with the needs of teachers and students. 2. Developing a game-based learning management model of the role of a suitable teacher who encourages students to experiment, practice and praise them when they do it right in order to create morale. and encouragement including the development of a game-based learning management model of usability It should be easy to use, challenging and the development of a game-based learning management model of participation. The content and method of presentation will determine student engagement. by developing a game-based learning management model of content type To accommodate various learning styles, games should have different types of content. This will affect the development of a game-based learning management model at the content level. In order to identify problem points and various aptitudes, games should use different teaching principles to adapt the content to each player. Development of a game-based learning management model according to the steps in The foregoing will help determine whether the game is appropriate and consistent with the learning goals set. Step 3: Study the students' opinions on the development of a game-based learning management model. Base (Game based learning) when putting the game to trial. The satisfaction of the learners must be checked from the satisfaction questionnaire. to see suitability in various aspects of the game Based on user feedback, Step 4: Improve and develop a game-based learning management model from the experimental game. Instructors will have to correct the flaws. in accordance with learning goals and learners And the fifth step was to assess the development of a game-based learning management model by collecting data from the games used for the experiment. to be compared with the assessment criteria set This is consistent with research by [7] which states that using games as a learning base, learners can learn basic knowledge and can practice practical experience, affecting the development of knowledge, understanding, skills and attitudes in training activities. Use a method of exchanging experiences between participants in the development. and the participants developed with the speakers focus on practice Organize a learning environment cause branching of knowledge and experience in changing situations and rules In addition to the role of the teacher learning transfer Optimizing game content for learning, activity conditions, game methods and team communication can effectively promote game-based learning. The results of the second objective research were to study the

opinions of doctoral students. Department of Management in the study of conceptual development of management processes according to SMEs business model for small business groups the students' opinions on the learning management model in the study of conceptual development of SMEs business management process for small business groups small Game based learning in overall was at the highest level ($\mu = 4.45$). SMEs model for small businesses Game based learning was based on the mean and standard deviation of the opinions of the students who studied with game-based learning. This is consistent with research [3] that says games help keep learners motivated in learning and performance. Learners can look at the overall management of Knowledge Planning as a survey of the current corporate environment. To know how much knowledge in the organization Then set the objectives up. for clarity in reaching that goal There should be an action plan for knowledge development resources. need to know the source of knowledge Time and cost required as well as knowledge transfer. Must know the knowledge of who or what agency will be responsible in collecting or disseminating knowledge, using any media, how much budget, etc. The results of the research objective 3 to study the academic achievement of doctoral students. Department of Management in the study of conceptual development of management processes according to SMEs business model for small business groups In the correlation coefficient of opinions on academic achievement of doctoral students Department of Management in the study of conceptual development of management processes according to SMEs business model for small business groups Those who studied with game-based learning management were related to the average grade of the students. It was statistically significant at the 0.05 level and the correlation coefficient between the opinions of the doctoral students. Department of Management in the study of conceptual development of management processes according to SMEs business model for small business groups Those who studied with game-based learning management were significantly correlated with the students' understanding of the learning process according to the SMEs business management process for small business groups. Statistically at the 0.05 level as well, it will result in learners to have more understanding and improve their learning. Consistent with the study of [6], it was found that there were researches and academic papers. including educational articles, the findings related to the success of learning through games Game Based Learning in the past 5-10 years has been increasing continuously. Most of the research supports the advantages of learning through digital games in terms of learning outcomes, attitudes and learning behaviors of learners.

VI. SUGGESTION

from research results The researcher has the following suggestions:

1. Recommendations from research

1.1 Development of a game-based learning management model to promote the development of the concept of business management process according to the SMEs model for small businesses Teachers should design an assessment of the learning progress of learners using games to be appropriate and consistent with learners in the 21st century.

2. Suggestions for the next research

For the next research issue, research should be done on the issue of

2.1 There should be a study on the development of game-based learning management model of other forms of innovation. Such as Brain-based Learning (BBL), Self-Directed Learning, Teaching using Mind Maps. Mapping) problem-based learning (Problem-based Learning teaching that causes learning from practice (Action Learning) learning from experience. (Experiential Learning management based on participative learning theory (Participatory Learning Cooperative Learning (Collaborative Learning Research-Based Learning Learning), etc., to increase efficiency in teaching and learning management

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The Study of Coronavirus Disease 2019 in Hospitality Industry to Students Prospect in their Career

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Abstract— The objectives of this research were 1) to study the impacts of COVID-19 in the hospitality industry 2) to study students prospect towards a career in the hospitality industry and 3) to study the impacts of COVID-19 in the hospitality industry on student career prospect. The samples used in this study were undergraduate students, Faculty of Liberal Arts, Rajamangala University of Technology Thanyaburi. The purposive sampling was used on 400 respondents. The results of the study found that the overall level of impact of the COVID-19 epidemic situation in the hospitality Industry in terms of employment, income and welfare was at a high level in all respects. The overall level of student's prospect for careers related to the hospitality industry in terms of compensation, career advancement and social status is very high in all respects. The career that students would like to pursue in the hospitality industry upon graduation were mostly front desk staff. The results of the hypothesis testing found that gender differences, cumulative GPA, parental income, and expected salary were statistically significantly different in the COVID-19 epidemic situation. 0.05. The impact of the COVID-19 epidemic situation in terms of employment and welfare, it was statistically significant to predict students prospect for careers in the hospitality industry for compensation and career advancement at a scale of 0.05. The variability could be explained 23.7% and 22.7%, respectively. The impact of the COVID-19 epidemic situation in terms of welfare, employment and income, it was statistically significant to predict students prospect for careers in the hospitality industry for social status at the 0.05 level. The variability could be explained 22.3%.

Keywords— impact, prospect, hospitality Industry, COVID-19

I. INTRODUCTION

With the first COVID-19 epidemic in Wuhan, China, it had spread to more than 60 countries around the world. This virus not only destroyed the human body, but this outbreak also devastated the global economy. In the hospitality Industry, it was one industry that was directly affected by the COVID-19 epidemic situation, for example, in the tourism business, when there were no tourists leaving, the tour operator has to stop business, the hotel business had no customers because the public did not travel and it made the airline business without customers as well, etc. According to the statistical report of the number of employed persons from [1], it was found that as a result of the COVID-19 epidemic and government lockdown and social spacing since March 22, 2020, there were no foreign tourists entering Thailand in

April and economic activities in both the manufacturing and service sectors had to be halted.

From the above situation, the government had started to take measures to prevent the COVID-19 outbreak such as the closure of shopping malls and markets, as well as the announcement of measures to restrict entry and exit for both Thai and foreign nationals. According to the statistical report, the number of people employed in the service sector in February increased from January by 20.42 million. When comparing February 2019 (normal circumstances in the absence of COVID) and February 2020 (during the time of the COVID-19 epidemic), it was found that when compared on a year-on-year basis, the number of employed persons in February 2020 decreased from 2019 by -0.17%. Compared to March of the previous year, the number of employed persons in March 2020 decreased by -0.90. The COVID situation in Thailand was improving, as noted by the declining number of infected people, the government had continued to release

relief measures. In this regard, signs of the overall recovery of the labor market were clearer, resulting in the overall recovery of August 2020. However, there were still 7.81 million fewer people working per week (part-time) or an increase from the same period of the previous year by 1.54 million or (28.9%), indicating that the labor market had not yet recovered in all occupations. Interestingly, the proportion of people employed but not employed during the survey time was only 1.1%. [2] [3] [4]

The Human Resources Policy Research Department of Thailand Development Research Institute [5] has estimated the number of unemployed people by setting the rate of GDP change of the service sector over a three-year period (2020-2022). GDP recovery in the service sector comes in two forms: U-Shape and L-Shape. In the case of a U-shape recovery, this means that in a critical time there will be a sharp and rapid contraction. The GDP recovery of the service sector is growing at a gradual and growth approaching the norm in 2022. In the event that the Thai government is able to control the epidemic by 2020, which means the labor market will normalize, it may take more than three years. However, due to the new COVID-19 outbreak in December 2020, the recovery was similar to that of the L-Shape case, that is, during the crisis it experienced a sharp and rapid contraction. The recovery is growing below the crisis and will not come close to the pre-COVID-19 period. It is estimated that shops, hotels, restaurants and entertainment venues will not recover within 3 years. In addition, the Thai economy was initially weak, all of which resulted in more than double the number of unemployed workers in the service sector each year. The average number of unemployed 400,000 people in 2020 has increased to 1,000,000 in 2021 and to 2,000,000 by 2022. More importantly, it could result in the number of unemployed under that assumption to exceed 2,500,000 by 2022.

Department of Tourism and Hotel Management, Faculty of Liberal Arts, Rajamangala University of Technology Thanyaburi, currently there are 2,154 1st-4th year students. In the future, when they graduate, these students will be entered into the hospitality Industry as workers. Some may be entrepreneurs or others may be employees who drive service businesses into the eyes of tourists. However, when the COVID-19 epidemic strikes, the Thai hospitality Industry has suffered a significant and serious impact. This may reduce the prospect of students who want to work in the service sector. The aim of this research is to study the impact of the COVID-19 epidemic situation in the hospitality industry on student's prospect for a career in the sense that: From the above situation, what are the prospect students will choose for future career options in the hospitality industry.

II. RESEARCH OBJECTIVES

1. To study the impacts of the epidemic situation of COVID-19 in the hospitality Industry.
2. To study students prospect for a career in the hospitality industry.
3. To study the impacts of the COVID-19 epidemic situation on student's prospect for a career in the hospitality Industry.

III. RESEARCH METHODS

A. Research Design

Population and sample: Purposive sampling were a sample selection by selecting 400 undergraduate students in four fields of the Faculty of Liberal Arts, Rajamangala University of Technology, Thanyaburi, including Tourism, Hospitality Management, English for Communication, and Aviation Service Industry.

B. Research Process

Construction of research tools: Questionnaires were used to collect data. Data was collected by a survey of 400 students of the Faculty of Liberal Arts. This included information from academic papers, concepts, theories as well as relevant research work, the impact of the COVID-19 epidemic situation on student's prospect for a career in the hospitality Industry.

Data analysis: The researchers analyzed the data using descriptive statistics, percentage, mean and standard deviation. Inferential statistics were analyzed for hypothesis testing including F-Test (One Way ANOVA). The double differences were compared using the Fisher's Least-Significant Difference (LSD) method. A relationship was tested between the impact of the COVID-19 epidemic situation and students prospect for careers in the hospitality industry. Pearson Product-moment value Correlation was used. An equation was shown to correlate the impact of the COVID-19 epidemic situation and students prospect for careers in the hospitality industry using Multiple Linear Regression analysis.

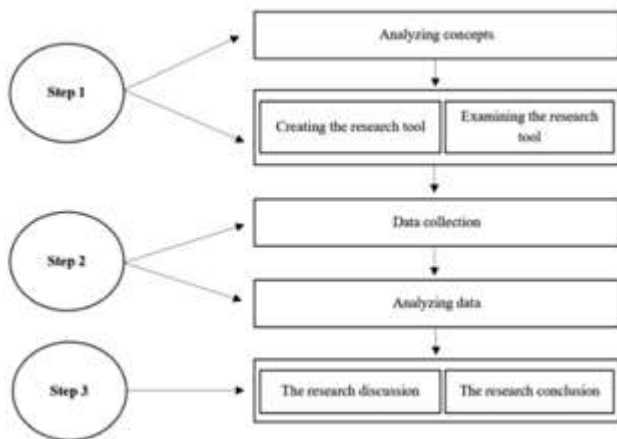


Fig.1 Research process to study the impacts of the COVID-19 epidemic situation on student's prospect for a career in the hospitality Industry.

IV. RESEARCH RESULTS

A. General information of respondents

In terms of gender, most were 84.8% female and 15.2% male, hometown in central region (46%), studied in year 2 (37.5%), hotel management (38.5%), cumulative GPA between 3.01-3.50 (35.5%), father in other occupations (40.8%), mother in other occupation (44.8%), most parents earned 15,001-30,000 baht (50.8%), most students earn less than 10,000 baht (90%), followed by most expect to earn 15,001-20,000 baht (32%).

B. The impact of the epidemic situation of COVID-19 in the hospitality Industry

1. The overall employment was at the high level and the average was 4.19. Considering each aspect, it was found that the immediate termination of employment affected the level of prospect for a career choice in the hospitality industry and had the highest average (mean = 4.37), followed by the reduction of the workforce affected the level of prospect for a career choice in the hospitality industry, the unemployment in the hospitality industry affected the level of prospect for a career choice in the hospitality industry and had the same average (mean = 4.25), unpaid suspension affected the level of prospect for a career choice in the hospitality industry (mean = 4.24) and the paid suspension affected the level of prospect for a career choice in the hospitality industry (mean = 3.82), respectively.

2. Overall income was at the high level and the average was 4.09. Considering each aspect, it was found that the employees with increased debt burden affected the level of prospect for a career choice in the hospitality industry and with the highest average (mean = 4.22), followed by

low-income cut-offs affected the level of prospect for a career choice in the hospitality industry (average = 4.12), the lower average employee income affected the level of prospect for a career choice in the hospitality industry (mean = 4.07), the salary deferrals affected the level of prospect for a career choice in the hospitality industry (average = 4.05) and the cancellation of the annual bonus payment affected the level of prospect for a career choice in the hospitality industry (mean = 4.02), respectively.

3. Overall welfare was in the high level with an average of 3.98. Considering each aspect, it was found that the absence of welfare for employees or workers affected the level of prospect for a career choice in the hospitality industry with the highest average (mean 4.18), followed by the reduction in welfare affected the level of prospect for a career choice in the hospitality industry (average 3.98), the increase in working hours on behalf of terminated colleagues affected in the level of prospect for a career choice in the hospitality industry (mean 3.97), increasing benefits instead of wages affected the level of prospect for a career choice in the hospitality industry (mean 3.92) and the enforcement of state welfare affected the level of prospect for a career choice in the hospitality industry (average 3.85), respectively.

C. Prospect of students in a career related to the hospitality industry

1. The overall remuneration was at the high level and the average was at 4.12. Considering each aspect, it was found that you expected a career in the hospitality industry to be highly paid and had the highest average (mean = 4.19), followed by that, you expected a career in the hospitality industry to be more adjusted in income (mean = 4.15), you expected a career in the hospitality industry to generate a stable income on a regular basis (mean = 4.10), you expected a career in the hospitality industry to be able to release your debt (average = 4.09) and you expected a career in the hospitality industry to have a decent welfare (mean = 4.08), respectively.

2. Overall career advancement was at a high level and the average was 3.96. Considering each aspect, it was found that you expected a career in the hospitality industry to be able to expand into a business entrepreneur (mean = 4.11), followed by you expected a career in the hospitality industry to grow and advance quickly (mean = 4.01), you expected a career in the hospitality industry to have the opportunity to further your education and you expected a career in the hospitality industry to be a stable one (mean = 3.94) and you expected a career in the hospitality industry to be promoted faster (mean = 3.78), respectively.

3. Overall social status was at the high level and the average was 3.84. Considering each aspect, it was found that you

expected a career in the hospitality industry to be recognized by your family or relatives and you expected a career in the hospitality industry to be one that brings you dignity and honor and had the highest average (mean = 4.07), followed by you expected a career in the service industry to be recognized by Thai society (mean = 4.06), you expected a career in the hospitality industry as a career that will make yourself known nationally (mean = 3.52) and you expected a career in the hospitality industry to be an internationally recognized career (mean = 3.47), respectively.

D. A career in the hospitality industry that students would like to pursue upon graduation.

- 1). The first place was the front desk staff.
- 2). The second place was staff in the food and beverage service department.
- 3). The third place was cruise staff.

E. Suggestions: Respondents' suggestions could be summarized as follows:

1. Choosing to study in another field of study or at a postgraduate level, or choose to work in a government agency
2. Concerns about the positions to be accommodated after graduation; due to the COVID-19 epidemic situation, service establishments were less open or staffed.
3. The impact on the career prospect in the hospitality industry and the prospect of improving the situation, deeming that work in other areas was likely to be required.
4. Prospect of a line that provided a more cost-effective return on the workload than those specific to the hospitality Industry.

Table 1 summarized the hypothesis test of analysis of variance.

Independent variable / control variable	Impact of the COVID-19 epidemic situation		Hypothesis (H1)	Students prospect for a career in the hospitality industry		Hypothesis (H1)
	F	Sig.		F	Sig.	
Personal information						
sex	4.135	0.043	accept	7.61	0.01	accept
domicile	0.20	0.96	reject	0.65	0.66	reject
Year level	0.52	0.67	reject	2.48	0.06	reject
branch	0.60	0.62	reject	1.60	0.19	reject
Cumulative GPA	0.67	0.61	reject	4.36	0.00	accept
Father's occupation	1.55	0.19	reject	0.66	0.62	reject
Mother's occupation	0.82	0.51	reject	0.28	0.89	reject
Parent income	0.80	0.49	reject	3.17	0.02	accept
Student income	0.48	0.62	reject	0.39	0.68	reject
Expected salary	0.48	0.79	reject	2.78	0.02	accept

* It was statistically significant at the level of 0.05.

Table 2 summarized the hypothesis testing and analysis of the relationship between the impact of the COVID-19 epidemic situation and students prospect for a career in the hospitality industry.

Impact of the COVID-19 epidemic situation	Students prospect (compensation)		Hypothesis (H1)	Students prospect (career advancement)		Hypothesis (H1)	Students prospect (social status)		Hypothesis (H1)
	r	Sig. (2 tail)		r	Sig. (2 tail)		r	Sig. (2 tail)	
Employment	0.454	0.00	accept	0.431	0.00	accept	0.391	0.00	accept
Income	0.446	0.00	accept	0.383	0.00	accept	0.330	0.00	accept
Welfare	0.442	0.00	accept	0.447	0.00	accept	0.447	0.00	accept

* It was statistically significant at the level of 0.05.

Table 3 summarizes the step-by-step multiple regression analysis hypothesis test table between the impact of the COVID-19 epidemic situation and students prospect for a career in the hospitality industry.

Impact of the COVID-19 epidemic situation	Students prospect (compensation)		Hypothesis (H1)	Students prospect (career advancement)		Hypothesis (H1)	Students prospect (social status)		Hypothesis (H1)
	R ²	Beta		R ²	Beta		R ²	Beta	
Employment	0.237	0.285	accept (0.00)	0.227	0.233	accept (0.00)	0.445	0.228	accept (0.00)
Welfare		0.243	accept (0.00)		0.284	accept (0.00)	0.223	0.228	accept (0.00)
Income			reject (0.109)			reject (0.421)		0.196	accept (0.02)

* It was statistically significant at the level of 0.05.

V. DISCUSSIONS

The study of the impact of the epidemic of COVID-19 in the hospitality industry on student's prospect for a career could be summarized as follows:

1. The impact of the COVID-19 epidemic situation in the hospitality Industry in terms of overall employment was high. This was because the situation of the COVID-19 epidemic had a direct impact on the economy, especially small entrepreneurs and employees who had a high chance of loss or lay off. As a result of the above results, it was found that the individual impact levels for respondents' immediate dismissal had the highest average level of prospect for career choice in the hospitality industry. It could be said that the epidemic affected employment clearly. In line with [5] that estimates the number of unemployed found that, shops, hotels, restaurants and entertainment venues would not recover within 3 years. In addition, the Thai economy was already weak, which resulted in more than doubling of the jobless workers in the service sector each year. In other words, there was an average of 400,000 people vacant in 2020, increasing to 1,000,000 in 2021 and this increased to 2,000,000 by 2022, and this could result in the number of unemployed under that assumption to exceed 2,500,000 by 2022.

2. The impact of the COVID-19 epidemic situation in the hospitality Industry in terms of overall income was at a high level. In each aspect, the sample group reported that employees with increased debt burden had the highest average level of prospect for choosing a career in the hospitality industry. This was because during the epidemic resulting in higher unemployment rates for employees, especially in the service sector, resulting in debt or debt payments had to be halted, making career prospect in the hospitality industry tapering off during the COVID-19 epidemic. In line with the research paper of [6], the impact of the COVID-19 crisis had been studied to create an understanding of the future situation of Thai household debt. This was a study in terms of account characteristics and more than 8.1 million borrowers who had taken credit assistance measures since April, total debt of 2.2 trillion baht (or

approximately 70% of the number of accounts taken by the Bank of Thailand at the end of June 2020). When considering the characteristics consistent with all account measures, it was found that 70.5% was a moratorium which in part may reflect a broader debtor's debt settlement problem, 25.8% was a reduction in the payment rate and 3.7% was entered into measures for NPL (debt restructuring or debt clinic). The vast majority of borrowers (76.1%) had only one loan account enacted, but another 7.3% took more than two accounts, and 4.9% also got new loans to serve as emergency liquidity. Assisted loans were concentrated, which made some areas look worrisome, especially in the East Isan region where the proportion of loans under the measure was up to 40-60%. Most of them were personal (high volume) and home (high leverage) loans. Mostly, it was primarily a measure of deferral payment. While the Bangkok Metropolitan Region, the South and the Upper North had a higher proportion of loans that were included in the measure for NPL than other areas.

3. The impact of the epidemic situation of COVID-19 in the hospitality Industry, in terms of overall welfare, it was at a high level. In each aspect, the absence of benefits for employees or employees had the highest average level of prospect for a career choice in the hospitality industry. Due to the epidemic situation of COVID-19, the government had taken measures to control the potentially contagious areas, especially the service sector that is directly affected such as temporary closure or shortening of the service period. As a result, establishments had to adjust, such as reducing the number of employees and reducing compensation and benefits. As a result of this, it may reduce prospect for choosing a career in the hospitality industry. It also showed the impact of the COVID-19 epidemic situation. With the reduction of the number of employees, the reduction of compensation and benefits, it was pointed out that the three factors were related. This was consistent with the research of [7] who had studied the welfare and compensation for the employees of industrial factories in PathumThani province. The importance of welfare, compensation and efficiency in all aspects of operations was at a high level. Welfare had a high positive correlation with the compensation of employees working in the manufacturing industry in PathumThani Province ($r = .732$, $\text{Sig} < .01$).

4. The prospect of students for a career related to the hospitality industry in terms of overall compensation were at a high level. In each aspect, you expected a career in the hospitality industry to be highly compensated and with the highest average. According to respondents about expected salaries after graduation, despite the epidemic and economic downturn, they still expected a salary in the range of 15,000-25,000 baht, which was the income that most

bachelor's degree graduates expect even in normal circumstances. This indicates that most students still expected to pursue a well-paid career. This was consistent with the research of [8] that studied "Post-graduate career prospect of students in Bachelor of Science, Information Technology, King Mongkut's Institute of Technology Ladkrabang" found that, the overall level of prospect was high in all areas. The prospect with the highest average were income prospect.

5. Students' prospect for a career related to the hospitality industry in terms of overall career progression were at a high level. In each aspect, you expected a career in the hospitality industry to be the one that would be able to grow into a business entrepreneur with the highest average. This was because students had high and promising career prospect. Even before the epidemic of COVID 19, the hospitality industry was a hugely popular occupation and generating substantial income for the country. Although the epidemic had a direct impact on the hospitality industry, Thailand is an outstanding country in the tourism industry with a strong connection to the hospitality industry, students therefore have prospect for a career in the hospitality industry because of the opportunity to advance in their careers. In line with Pailin Banto's research [9] that studied external factors that influence the needs of choosing a career in the hospitality industry of hotel management students at the undergraduate level in Bangkok and its vicinity such as marketing trends, job characteristics, compensation and opportunities for advancement found that, external factors had a significant influence on the career choices in the hospitality industry of hotel management students at the undergraduate level in Bangkok and its vicinity.

6. Prospect of students in a career related to the hospitality industry in terms of overall social status were at a high level. In each aspect, you expected a career in the hospitality industry to be a recognized family or relative and you expected a career in the hospitality industry makes you feel dignified and dignified and had the highest average. This was because certain groups of people also had a negative service concept, as well as different people's ideas of understanding, attitude, recognition and respect. As a result, students had prospect of respect and acceptance in society. In line with Naphakathawat Kiratipipatkorn's research [10], the operational satisfaction of housekeeping staff and front desk workers in five-star hotels in Bangkok was found, motivating factors (job characteristics, job success, accountability, recognition and career advancement) and various supporting factors (policy and administration, occupational security, professional status, relationships with colleagues, privacy, work environment, governing and commanding and warnings and welfare, compensation), overall, there was a statistically

significant correlation with the job satisfaction of the housekeeping staff in the five-star hotel in Bangkok at 0.05.

7. Careers in the hospitality industry that students would like to pursue upon graduation, when considered individually, were as follows: the first place was job position in accommodation business (64.7%), tourism (16.1%), aviation business (14.3%), and other related positions (5.5%); the second place was job position in the aviation business (31.6%), accommodation business (30.7%), tourism (17.4%), other related positions (12.5%) and non-choosing a career (8.5%); the third place was other related positions (39.7%), aviation business (32.1%), non-choosing a career (11.5%), accommodation jobs (9.6%) and tourism (7.5%). According to the proportion of personal information, students would choose a career that corresponds to their field of study, in order of 1, 2 and 3; choose a career group that was more likely to pay high fees, such as the aviation business and cruise crew. In line with PailinBanto's research [9], external factors influencing the desire to choose a career in the hospitality industry of hotel management students at the undergraduate level in Bangkok and its vicinity such as marketing trends, job characteristics, compensation and opportunities for advancement, the results of hypothesis of external factors showed that external factors significantly influenced the career choices in the hospitality industry of hotel management students at the bachelor's degree level in Bangkok and its vicinity.

8. Other suggestions: Most students were concerned about the job positions that would be available after graduation and expected a better economy soon. Due to the epidemic situation of COVID-19, the economy was stagnated into recession which resulted in higher unemployment. In line with [1], statistical data on the number of people employed were more than 750,000 unemployed, nearly double the previous year during the same period. As for the insurers in the social security system registered for unemployment benefits under Section 38, it had risen to approximately 300,000 people.

9. The results of hypothesis testing could be discussed as follows.

9.1 Hypothesis 1: Different respondents' generalizations were affected by different COVID-19 epidemic situations.

9.1.1 Differences of sexes had a statistically significant difference in the impact of the COVID-19 epidemic situation at the 0.05 level. This may be due to the fact that most workers in the hospitality industry were female, thus different levels of occupational prospect from males. Inconsistent with the research of [8], the study of occupational prospect after graduation found that, prospect in terms of personal differences from hypothesis testing results: gender, domicile, academic year, field of study, reason for choosing to study,

parents' occupation, parental income and intention of the job after graduation, there were no different career prospect after graduation. This could be due to the impact of the COVID-19 situation, which gives students different perspectives on career choices in different genders.

9.1.2 Difference of domicile, year grade, branch, cumulative GPA, paternal occupation, maternal occupation, parental income, student income and expected salaries were not significantly different from the impact of the COVID-19 epidemic situation at the 0.05 level. From the above factors, it could be seen that the differences of most personal data factors did not affect opinions of different impacts. This may be because the COVID-19 outbreak was a serious epidemic and spread all over the world. This may be because the COVID-19 epidemic was a serious and global epidemic, all of which have changed, making everyone aware of the impact of the problem clearly. From the research of [9], it was found that demographic factors had no impacts on career choose in the hospitality Industry. It was therefore pointed out that although personal factors differ, perceptions and prospect of careers in the hospitality Industry were not different.

9.2 Hypothesis 2: The general information of different respondents influenced students prospect for careers in the different hospitality industries.

9.2.1 Gender differences affected students' prospect of a career in the hospitality industry significantly differently at a level of 0.05. Since the perception of impacts in hypothesis 1 suggested that the perceptions of the impacts of each gender were different, they also had different prospect.

9.2.2 Difference in cumulative GPA resulted in a statistically significant difference in student's prospect for a career in the hospitality industry at the 0.05 level. This may be because some establishments were recruited using a cumulative GPA, resulting in different levels of career opportunities for students. As a result, the prospect for a career in the hospitality Industry were different. It was inconsistent with the research of [11] a study on the factors of choosing a career of the 4th year students of the Bachelor of Arts program, Chinese Language Program, RajabhatMahasarakham University found that, gender, cumulative GPA, expected future career choice, parent occupation, average monthly family income and graduate career prospect of parents or guardians were not different in overall career choice.

9.2.3 Parental income differences significantly differed on student's prospect for careers in the hospitality industry at a level of 0.05. This was because the income of the parents affected the readiness of the students' future planning, for example, if parents did not have sufficient income to support them, students may had prospect for careers at a level where the parents did not have to bear the additional burden such as

upon graduation, they needed to start working immediately, not thinking about further education or not interested in looking for a high-paying job, as they were more inclined to find stability more quickly. Especially during the epidemic affecting recruitment, students who had just graduated needed to rely primarily on their families. It was inconsistent with the research of [11], a study on the factors of choosing a career of the 4th year students of the Bachelor of Arts program, Chinese Language Program, RajabhatMahasarakham University found that, gender, GPAs, expected future career choice, parent occupation, average. monthly family income and graduate career prospect of parents or guardians were not different in overall career choice.

9.2.4 Different expected salaries had statistically significant difference in student's prospect for careers in the hospitality industry at a level of 0.05. This may be because the expected salary in the future was related to the current background of the person, for example, women had a greater range of career-related job opportunities, cumulative GPA required by an establishment for admission to work or income of parents that helped promote future planning, etc.

9.2.5 Difference of domiciles, grade, year, field, father's occupation, mother's occupation, and student income had no statistically significant differences in student's prospect for a career in the hospitality industry at the 0.05 level. This may be because students prospect were a key factor that students would have to think about in the future. In terms of domicile, grade, year, field, and occupation of the parents, these factors were clearly visible to students today and could not change. Therefore, such different personal factors did not affect future prospect. It was consistent with the research of [11], a study on the factors of choosing a career of the 4th year students of the Bachelor of Arts program, Chinese Language Program, RajabhatMahasarakham University found that, gender, GPAs, expected future career choice, parent's occupation, average monthly family. income and graduate career prospect of parents or guardians were not different in overall career choice. And in line with PailinBanto(2019) research, it was found that, students domiciled in Bangkok and its vicinity and students domiciled in upcountry had no significant difference in career chooses in the hospitality Industry.

9.3 Hypothesis 3: The impact of the COVID-19 epidemic was related to student's prospect for careers in the hospitality industry.

An analysis of the relationship between the impact of the COVID-19 epidemic situation and students prospect for a career in the hospitality Industry found that, the impact of the COVID-19 epidemic in terms of compensation, career advancement and social status were significantly correlated with students' prospect of a career in the hospitality industry at

the level of 0.01 and moderate in the same direction. The impact of the COVID-19 epidemic situation had greatly slowed down the overall economy of the country. In particular, the professional hospitality Industry was most affected. Students studying in a field related to the aforementioned careers had prospect for future career opportunities in the same direction as their impact level, and found ways to minimize their impact. This was because students may foresee more likely opportunities. Predictive analytics showed that, the impact of the COVID-19 epidemic situation may affect compensation prospect, career advancement and social status by 23.7 percent, 22.7 percent and 22.3 percent, respectively. In line with [9] research, the study of external factors influencing the desire to choose a career in the hospitality Industry, external factors such as market trends, job characteristics, compensation and opportunities for advancement found that, external factors had a statistically significant influence on the choice of careers in the student hospitality Industry.

VI. CONCLUSION

1. The study found that the impact of the COVID-19 outbreak situation in all areas of the hospitality Industry was at a high level. The degree of impact that students focus on were related to employment cuts, pay cuts, and appropriate benefits. Therefore, the relevant departments should push forward the recovery in the hospitality Industry to normal as quickly as possible or change the service model without affecting the employment of students in the future.
2. Prospect of students in pursuing careers in all areas of the hospitality industry was at a high level. Students expected reasonable compensation, career advancement, and recognition. Therefore, the relevant departments should plan to develop a stable service model and build students' confidence and stability in the field of careers related to the hospitality industry. This was to provide the labor force in the event that the hospitality Industry was restored in the future.

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Factors of students deciding to study further the Phrapariyatidhamma Schools of General Education Department in Ubonratchathani Province

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Abstract— This research aimed to study the factors of students who decided to study in Phrapariyatidhamma School, General Education Department in Ubon Ratchathani Province, to study image factors of Phrapariyatidhamma School. The General Education Department in Ubon Ratchathani Province that influences the decision to study at the secondary school level to study the curriculum factors affecting the decision of choosing to study at the secondary school in order to study the factors of personal reasons that affect the decision to study. Per secondary level the steps are: 1) Study documents, concepts, theories and related research. The data was summarized by analyzing the theoretical content to draw up the conceptual framework for the research. 2) Determine the conceptual framework, factors affecting the decision of choosing to study at the secondary school level in Phrapariyatidhamma School, General Education Department in Ubon Ratchathani Province, and take the questionnaire. Were tested on non-sample groups, namely students from the Phrapariyatidhamma School, General Education Department In Ubon Ratchathani Province, the results were analyzed by processing all of the data in the questionnaires, presenting the results of the discussion in the form of a table with subtitles.

The results showed that the general data of the respondents by students from Phrapariyatidhamma School, General Education Department in Ubon Ratchathani Province. The sample group of 100 people found that the sample was male living in Ubon Ratchathani Province by expressing the opinions of the respondents on the factors of the students who decided to study in Phrapariyatidhamma School. The respondents had the opinion on the factors of the students who decided to study in Phrapariyatidhamma School, overall, the mean was at the highest level. The number 1 in the list is the image of Phrapariyatidhamma School was at the highest level and the results of 1) were found from the study that the students who answered the questionnaire had the level of opinions about the factors of the students who decided to study in Phrapariyatidhamma School. Image Factors of Phrapariyatidhamma School 2) From the study, it was found that the students who responded to the questionnaire had a level of opinion on the image factor of the Phrapariyatidhamma School which influenced their decision to study at the bachelor's degree, as a school. Phrapariyatidhamma 3) From the study, it was found that the students who answered the questionnaire had a level of opinion on the curriculum factors affecting their decision to study at the secondary school level. 4) From the study, it was found that the students who answered the questionnaire had a level of opinion on the personal reasoning factors affecting the factors of the students who decided to choose to study in Phrapariyatidhamma School. Family And the family sent to further study Yes, and the parents of the students are advised to choose to study in this school's Phrapariyatidhamma School in order to allow the students to enter into formal education and the problem of poverty. Education provided

Keywords— the decision to choose to study further, Phrapariyatidhamma School, General Education Department, Ubon Ratchathani Province

I. INTRODUCTION

Education is an integral part of human resource development of human life. Most of the people pay attention and pay attention to education very much, including the government has encouraged and encouraged all people to pay attention to this because it is the basis of success in life and can be used in Professions for self-sufficiency and family in the future.

Phrapariyatidhamma School, Department of General Education in Ubon Ratchathani Province, the state that focuses on teaching Buddhism with the objective of education to promote religious academics that focus on teaching practice. Produce many levels of dharma It provides academic services in teaching in the general department and preserving arts and culture. Teaching covers all subject areas and to attract the school and students in Grade 6. Those who are

about to graduate will have more opportunities and options to decide on the choice of school [2].

Therefore, Phrapariyatitham School, General Education Department in Ubon Ratchathani Province, it is imperative to have a strategy to find ways for schools and students in the target group to decide to study at the lower and upper secondary levels. by organizing various activities and forms of public relations through various channels, such as sending brochures, information, press releases to educational institutions, introducing websites Organizes traffic guidance activities to participate in the Curriculum Market Project, which is an activity organized by Phrapariyattidham School, Department of General Education in Ubon Ratchathani Province every year. This is to publicize the environment within Phrapariyattidham School, Department of General Education. in Ubon Ratchathani Province for students to understand and feel interested in deciding to study at Phrapariyattidham School Department of general education in Ubon Ratchathani province more.

Due to the problem of accepting students that do not meet the goals each year, the students are interested in studying the factors that affect the decision to choose to study at the lower secondary level. and high school of primary school students and grade 6 3 (M.6) which has an educational institution in Ubon Ratchathani Province. The information obtained from this study will be used as a guideline for developing and improving public relations, providing school information and as a guideline for guiding students. Increased interest in and decided to study in the Phrapariyattidham School of the General Education Department in Ubon Ratchathani Province for the Phra Pariyatit Thamma School of the General Education Department in Ubon Ratchathani Province. more to achieve the next goal.

II. RESEARCH OBJECTIVES

The objectives of this research article were

1. To study the factors of students who decide to study in Phrapariyattidham School, Department of General Education in Ubon Ratchathani Province.
2. To study the image factors of Phrapariyattidham School General Education Department in Ubon Ratchathani Province that Affects Decision Making for Secondary Education
3. To study the factors of curricula affecting the decision to choose to study at the secondary level. To study the factors of personal reasons affecting the decision to study at the secondary level.

III. SCOPE OF RESEARCH

Factors of students deciding to study in Phrapariyattidham School Department of General Education

in Ubon Ratchathani Province

1 The population used in this study was students in Phrapariyattidham School, General Education Department. in Ubon Ratchathani Province

2 sample groups were the population in item 1), 400 students in Phrapariyattidham School, General Education Department in Ubon Ratchathani Province. using Crazy and Morgan tables and using a simplified sampling method. Here, the study asked to increase the sample to 398 people.

3 educational issues to study the factors of students who decide to study in Phrapariyattidham School, Department of General Education in Ubon Ratchathani Province

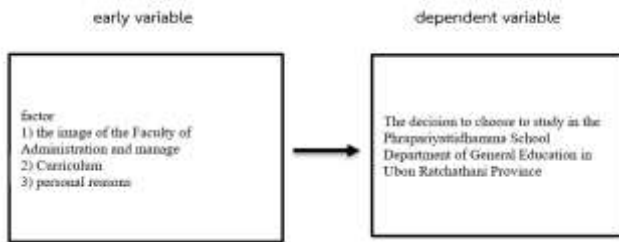
4 The study period started from May 2021-June 2021 and the questionnaire was collected from the sample group. Between 17–19 May 2021

IV. POPULATION AND SAMPLE

1. The results of the development of educational institutions the purpose of this study was to study the factors of students who decided to study in Phrapariyattidham School, Department of General Education in Ubon Ratchathani Province. The population used in this study were students. in the school Department of General Education in Ubon Ratchathani Province. The sample was the population in item 1), 400 students in Phrapariyattidham School Department of General Education in Ubon Ratchathani Province using Crazy and Morgan tables and using a simplified sampling method here. The researcher asked to increase the sample group to 398 people.

conceptual framework

study subject Factors of students deciding to study in Phrapariyattidham School Department of General Education in Ubon Ratchathani Province The students used the following conceptual frameworks:1. Independent variables are factors that affect the decision to choose to study, consisting of 3 aspects: 1) the image of Phrapariyattidham School. Department of General Education 2) Curriculum and 3) Personal Reasons by integrating variables [2][3] 2. The dependent variable was the decision to study further in Phrapariyattidham School. Department of General Education in Ubon Ratchathani Province It is written in the educational conceptual framework as shown in Figure 1-1.



V. CONCEPTS, THEORIES AND RELATED STUDIES

study subject Factors of students deciding to study in Phrapariyattidhamma School Department of General Education in Ubon Ratchathani Province The researcher has researched and compiled documents using concepts, theories and related studies as a guideline for the study. The contents are divided as follows:

Concepts and theories about decision making

definition of decision the decision to choose to study in the Phrapariyattidhamma School Department of General Education in Ubon Ratchathani Province The students studied textbooks. Documents and related research found that there are many scholars both in Thailand and abroad who have given the meaning of decision making as follows:

Somkid Bangmo (2005: 175) defined the decision as the decision to choose the path. Practice, which has many paths, is a guideline to the goal that is left blank. This decision may be a decision to take one or more actions to achieve the intended goals. In practice, decisions are made about complex problems and there is always more than one solution.

Concepts and theories on factors influencing consumer decision-making.

From the review of textbooks on concepts and theories on factors influencing consumer decision-making. It was found that there are many scholars both in Thailand and abroad who have divided several factors as follows.

Oppenheim (1979: 63) stated that the factors that influence a decision depend on a number of factors:

1) Values Values influence the decision-making process in situations where there are multiple options. The first choice may result in values developing and changing for the better. while the option Second, new values can be created that suit their needs. However, it will depend on the person's circumstances. [5]

2) Family type (Type of Family) The type of family affects decisions such as the size of the family. family finances Career and education of housing and religious members of the family will be important to the decision.

3) Family Resources Family resources affect decision-making. In other words, people generally tend to follow the same buying pattern of things they have bought in the past. make more careful Because making final and

habitual decisions, such as buying clothes and food, is a habit. and are more likely to buy clothing and food that are similar in nature over and over. Some women buy shirts and Skirts for everyday wear for men, wear t-shirts and jeans. In addition, many foods contained in the market, we tend to buy the same food for the same occasion every time and it is difficult to recognize. The reason for the person making the decision to spend Someone can be specific about the reason for the purchase decision. But some people do not know the reason, only want to buy.

4) The direction of the social economy (The Socioeconomic Setting) The country's economy will Affects purchasing decisions, that is, during the prosperity of the economy, most people will work and have money. for shopping with peace of mind But when the economy is in recession, it becomes aware of the changing economic conditions. therefore, spending less

Research tools

This study the researchers used a questionnaire as a tool for collecting information about Factors of students deciding to study in Phrapariyattidhamma School Department of General Education in Ubon Ratchathani Province The details are as follows.

1. The questionnaire used in the study consisted of 3 parts as follows:

Part 1 General information of the respondents It is an open-ended questionnaire for respondents. Fill out questionnaires and closed-ended questionnaires Multiple Choice Questions The nature of the questions is a checklist [6] by selecting the most appropriate item, consisting of gender, province of residence, studying at grade level Currently studying in school cumulative GPA and total family income

Part 2 Data on factors of students who decide to study in Phrapariyattidhamma School Department of General Education

in Ubon Ratchathani Province It looks like a closed-ended questionnaire. by using Likert Scale, which is consistent with the study of [2], consisting of

1) Image factors of Phrapariyattidham School Department of General Education

2) Curriculum Factors

3) personal reasoning factors

Part 3 Other Suggestions In order for the respondents to express their opinions about the factors of students deciding to study in Phrapariyattidhamma School. Department of General Education in Ubon Ratchathani Province The open-ended questionnaire was used for the second part of the questionnaire, which consisted of question types using the Likert Scale. The scoring criteria were set to measure opinions in 5 levels, namely high. The most, the most, the

medium, the least and the least the scores for the answers to the questionnaire were determined [1].

Data collection

This study is a study Factors of students deciding to study in Phrapariyattidhamma School Department of General Education In Ubon Ratchathani Province, there are data sources in the study consisting of 2 parts:

1. Primary Data by using a questionnaire to collect opinions from variables, i.e. factors of students who decide to study in Phrapariyattidhamma School. Department of General Education in Ubon Ratchathani Province of the sample of 398 sets, with the steps to proceed as follows

1) Distributing questionnaires to the sample groups who report to new students during the day

May 17-19, 2021 and explain how to answer by yourself.

2) Conduct a preliminary examination of the completeness of the questionnaire and exclude incomplete questionnaires.

2. Secondary Data by reviewing all literature from books, academic documents, study work, study articles, academic articles and information disseminated through the media on the Internet

Data analysis

Analysis of data collected from questionnaires the study was conducted to examine the completeness of questionnaire responses by separating incomplete questionnaires Enter pre-defined code, process data. from the information that has been coded and saved by using a ready-made statistical program for education social science to analyze the data as follows:

1. General data analysis of student's students from various educational institutions every region of the country that Apply for the entrance examination to study in Phrapariyattidhamma School Department of General Education in Ubon Ratchathani Province consists of gender, province where they live, studying, grade level, currently studying at school. cumulative GPA and total family income using descriptive statistics, which consist of Frequency distribution (Percentage) to analyze the demographic characteristics of the sample studied.

2. Analysis of data on factors of students who decide to study in Phrapariyattidhamma School Department of General Education In Ubon Ratchathani Province, descriptive statistics consisting of mean and standard deviation were used to analyze information about the level of opinions about the factors of students who decided to study in Phrapariyattidham School. Department of General Education in Ubon Ratchathani Province by presenting the information in a tabular form along with the lecture

3. Bring other suggestions from the third part of the questionnaire to be summarized or analyzed in a descriptive and descriptive manner.

Summary of research results

The results of the general information of the respondents with students from various schools All regions of the country applying for the entrance examination to study in Phrapariyattidhamma School Department of General Education in Ubon Ratchathani Province Which is a sample of 398 people, found that most of the sample is male, 398 people, representing 100.00%, live in Ubon Ratchathani Province, 318 people are studying in grade 6, number 215 students are currently studying in schools under the school. of the government of 310 people with a cumulative GPA of 3.50 or more, of which 175 people, representing a total family income between 10,001-15,000-baht, 257 people

The results of the opinions of the respondents on the factors of students who decided to study in Phrapariyattidhamma School Department of General Education in Ubon Ratchathani Province Overall, the results of the study revealed that the respondents had opinions about the factors of students who decided to study in Phrapariyattidhamma School. Department of General Education in Ubon Ratchathani Province, overall, the average was at the highest level. Considering each aspect, it was found that the opinion level of the sample group towards the internal average ranked first was the image of Phrapariyattidham School. The general education department, followed by the curriculum, had the highest average level, and the privacy aspect of the sample group put the opinion level at the last rank. which has a high average level the average was at a high level, meaning that the students gave the most overall importance, especially in terms of the image of Phrapariyattidhamma School. Department of General Education

The results of the opinions of the respondents on the factors of students who decided to study in Phrapariyattidhamma School Department of General Education in Ubon Ratchathani Province The results showed that the respondents had their opinions about the factors of students deciding to study in Phrapariyattidhamma School. Department of General Education in Ubon Ratchathani Province The image of Phrapariyattidham School Department of General Education The average is at the highest level. When considering each item, it was found that the level of opinion of the sample group on the average of each item ranked No. 1 as being a school of a public institution with a reputation for teaching religion. The average was at the highest level, followed by Phrapariyattidhamma School. Department of General Education that offers a wide variety of subjects that correspond to life the average was at the highest level and was

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the Phrapariyattham School. Department of General Education Those with outstanding religious teachings had the highest average level.

The results of the opinions of the respondents on the factors of students who decided to study in Phrapariyattidhamma School Department of General Education in Ubon Ratchathani Province, in terms of curricula, the results of the study found that the respondents had their opinions about the factors of students deciding to study in Phrapariyattidhamma School. Department of General Education in Ubon Ratchathani Province, the curriculum had the highest average level. When examined individually, it was found that the opinion level of the sample towards the item average ranked No. 1 as the religious teaching courses offered were known for their practice. The average is at the highest level.

The results of the opinions of the respondents on the factors of students who decided to study in Phrapariyattidhamma School Department of General Education in Ubon Ratchathani Province personal reasons the results showed that the respondents had their opinions about the factors of students deciding to study in Phrapariyattidhamma School. Department of General Education in Ubon Ratchathani Province personal reasons the average is at a high level. When considering each item, it was found that the level of opinion of the sample group towards the item mean at the 1st place was that there were courses and subject areas that met the needs of religious teaching students. The average is at the highest level. objective outcome Objective 1 From the study, it was found that the students who answered the questionnaire had a level of opinion about the factors of students deciding to study in Phrapariyattidhamma School. Department of General Education in Ubon Ratchathani Province, the overall picture is the image of the Phrapariyattidhamma School. Department of General Education Objective 2 From the study, it was found that the students who answered the questionnaire had a level of opinion about the factors. The image of Phrapariyattidham School Department of General Education that affects the decision to choose to study in the Phrapariyattidhamma School Department of General Education in Ubon Ratchathani Province It is a school of Phra Pariyat Thammarat. Department of General Education that offers a wide variety of subjects that correspond to life Objective 3 From the study, it was found that the students who answered the questionnaire had a level of opinion about the factors. Curriculum that affects decision to study in Phrapariyattidhamma School Department of General Education in Ubon Ratchathani Province Objective 4 From the study, it was found that the students who answered the questionnaire had a level of opinion about the factors. Regarding personal reasons affecting decision to study in

Phrapariyattidhamma School Department of General Education in Ubon Ratchathani Province There are courses that are offered to meet the needs of Buddhist principles.

Discuss the results of the research.

Factors of students deciding to study in Phrapariyattidhamma School Department of General Education In Ubon Ratchathani Province, the students were able to discuss the results with the following important issues:

Issue 1 Overall Factors It was found that the respondents had opinions about the factors of students deciding to study in Phrapariyattidham School. Department of General Education in Ubon Ratchathani Province Overall, the average was at the highest level. The factors that affected the intention to choose the Faculty of Business Administration were studied. Suranaree Technology of students with good grades in the lower Northeastern region Curriculum and personal reasons affect the intention of choosing. Faculty of Business Administration Suranaree technology of students with good grades in the lower northeastern region [2]

Issue 2: Image of Phrapariyattidhamma School Department of General Education It was found that the respondents had opinions. About the image factors of Phrapariyattidham School Department of General Education The average is at the highest level. This is because it is a Phra Pariyat Thamma School. Department of General Education that offers a wide variety of subjects that correspond to life which will help cause memorization Telling about the outstanding features of Phrapariyattidham School Department of General Education including causing I was proud when I came to study and graduated and I also studied the factors affecting decision making. Students choose to continue their studies in the Higher Vocational Certificate Program (Vocational Vocational Certificate) Case Study of Thonburi Commercial College. The sample group has long been the most important factor in the college's reputation [7].

Issue 3, Curriculum, found that the respondents had opinions about the curriculum factor with the highest average level. And the courses that are offered also focus on the courses that are offered to meet the needs of Buddhist principles.

Issue 4: Personal reasons, it was found that the respondents had opinions about the factor's personal reasons with a high average level There are courses and fields of study that meet the needs of religious teaching students who have studied the factors involved. Effects on students' decision to choose to study in the Higher Vocational Certificate Program (High Vocational Certificate) Case Study, Thonburi Commercial College The results showed that the sample group gave the most importance to the preference factor. and the most personal aptitude [7]

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Feedback

The results of the study of factors of students who decided to study in Phrapariyattidhamma School Department of General Education in Ubon Ratchathani Province

1. Phra Pariyattham School Department of General Education in Ubon Ratchathani Province The image factors of Phrapariyattidhamma School should be corrected. Department of General Education in terms of entry Studying is easy but graduating is difficult. with public relations and building awareness about the timeline in studies throughout the course

Suggestions for the next study

1. Should study the factors of students who decide to study in Phrapariyattidhamma School Department of General Education in Ubon Ratchathani Province This is to compare the results from the study with other schools in order to compare the results from the study to see if the results are similar or different..

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A Model to Promote Family Happiness among the People of Chiang Mai province by the application of good household life

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Abstract— The objectives of this research were as follows: 1) to study the context and analyse the problems of the lack of happiness in the family of people in Chiangmai 2) to study the virtues for a good household life (Gharavasa-dhamma) applied to promote the happy family life 3) to create the pattern of promoting the happy family life 4) to try out and evaluate the model of the happy family life by using the virtues for a good household life. Population and sample were the family living in Chiangmai Municipality it was divided as informants using questionnaire 398 families, using activities and interview 20 families and 5 specialists. The tool of data collection were questionnaire and interview, the statistics used for analysing were frequency, percentage, mean and standard deviation. Findings were as follows : 1) all the four problems of the lack of happiness in the family were in medium. When considering each aspect, the higher aspect was economic, social and environmental. The secondary were the influence of the media, not ready and not prepared to be a family, and society is not aware of the importance of family. 2) Gharavasa-dhamma applied to use promoting the happy family life were 1) Sacca: sincerity to each other, honesty and not cheating. 2) Dama: adaptation and the ability to control emotions 3) Khanti: patience, perseverance and an unflinching commitment to the destination. 4) Caga: kindness and sympathy. All will make the happy family life. 3) For the families did not understand Gharavasa-dhamma well and there was a lack of responsibilities of a family member, Gharavasa-dhamma was tried out the model through Happy Family Promotion Program. Consequently, each family member is responsible and knows his/her own role as a family member. 4) Evaluation of using the model to promote the happy family life by Gharavasa-dhamma aspect with family lifestyle. After experiment with the target audience with 20 families, the results are at the highest level.

Keywords— Model, Promote a happy family, Gharavasa-dhamma

I. INTRODUCTION

The family is the most important institution that everyone has to take care of because it serves to shape and refine humanity, including nurturing, loving, helping and supporting each other. In addition, the morals, ethics, values, and social cultures are cultivated and transferred to family members in order for them to be of good quality as well as to be a good member of society. Similarly, according to the Department of Women's Affairs and Family Development, Ministry of Social Development and Human Security, "family is a starting point and a critical crucible in the production of members for society[1]. The quality of the members of society is therefore the product of which the family plays a large part in the production. For this reason, the family is a source of humanity that affects the quality of society and that is expected from society to be an important unit in preventing, restoring, developing, and solving problems to members of

society at all times. As the current situation of Thai society has been perceived as in a state that is full of various problems that are all escalating every day, it is inevitable for the family to become a social unit regarded as the defendant of the current situation.

When looking back at the past, the living conditions of the family were close and intimate with a strong relationship, respectfulness, support, and care for each other, including constant contact with relatives. Nowadays, the changes in society have transformed the previous conditions of Thai families into a single family rather than an extended family with more than 2 generations of people living together. In addition, a single family has more diverse characteristics, that is, parents and children live together, or elders and grandchildren live alone because their parents are necessary to immigrate to pursue a career, or women become a family head and live with their children due to abandonment or separation of their husbands for working, or children live alone without parents or elders. Moreover, parent-children

coexistence tends to decline, while only husband-wife coexistence (childless families) tends to increase, which is similar to the increasing trend of divorce families. As for the relationship among family members, they have an increasing distance from each other while the responsibility for the role of each family member has decreased and changed due to the socio-economic conditions and the advancement of technologies and communications. Moving for occupation and tight working to generate income and pay off debt have also provided family members with less time to spend together [2]. From the current social situation, there are still family problems where children are a victim of physical abuse, husbands injure their wives or vice versa, parents raise their children in a wrong way, and sexual abuse is committed by family members, etc. as presented in various media, including television and newspapers, which are common problems and are becoming more serious today. Similarly, the current conditions of families in Chiang Mai have changed dramatically in many ways due to globalization and advancement of modern technologies. An extended family where people of different ages live together has become a single family consisting of only parents and children. However, when it is coerced by a living situation, it is more important to make a living than caring for a family relationship. As a result, the family is weaker and parents do not have time to take care of their adolescent children. In addition, the adolescents themselves are the age of wanting to learn and try and having a high self, causing family conflicts and resulting in many problems [3]. These changes have led to the economic and social shakiness of the family institution. According to the Chiang Mai Provincial Social Development and Human Security Office [4]. The problems of families in Chiang Mai are as follows respectively: a divorce or separation leads to a single-parent family with unaccompanied children, the family members behave inappropriately, such as children wandering around, the family heads behave inappropriately, such as alcoholism or gambling addiction, there is a lack of proper care or neglect of parents, and the children and women are violently abused. This situation reflects that these problems within the family are the beginning of the problems that weakens the family institution and other social problems that will follow in the future. Similarly, according to the family development policy and plan for 1994–2003 established by the Thai Family Research and Development Center [5], family problems are caused by unreadiness and unpreparedness to be a family in many aspects. For example, for psychological aspect, there must be enough maturity to bear the burden of parenting, for social aspect, there must be sufficient knowledge and ability to pursue a career and earn income to support the family, and for economic, social, and

environmental aspect, the family is unable to play its role completely and to adapt itself. Weak families are also severely affected by the lack of appropriate family welfare while society does not recognize that the family has an impact on society as a whole. As a result, there is a lack of collective consciousness and power from all institutions in society to develop families and prevent and resolve family problems. In addition, these family problems are influenced by the media that instill extravagant values, violence, promiscuous behavior, and obscene productions.

Therefore, the researcher has realized the importance of social problems and changes occurred in today's society because household security is the cornerstone of national security. Similarly, according to Phanom Ketman, the family is the basis for human development and the learning of children begins in the family [6]. It can be seen that, in the family with happiness and warmth, the children will grow into quality citizens. Thai families are now facing more problems because society has changed quickly, there is more material prosperity, family structure has changed and become smaller, there are more divorces, people pay less attention to the mind, parents have less time for their children and have a problem of raising their children, and there is a lack of warmth and joy in the family causing problems for children and adolescents. Therefore, encouraging families to be strengthened is extremely important.

The Buddha's teachings about the four virtues for lay people bestowed upon the householders to practice in order to enhance the happiness in their life consist of 1) Sajja includes honesty, trust, no cheating and secret to each other, and only one love in which when the family has no Sajja or sincerity, it will be the beginning of the division, and when there is no trust to each other, the couple life will start becoming miserable; 2) Thama includes knowing to restrain from the bad thoughts of our heart, to resist the heart when the uncomfortable stories arise, to improve oneself to keep progress continuously, and to accept and correct own shortcomings; 3) Khanti includes the patience in the events or stories that occur in the family and in the gossiping of the other party with no expressing a moody emotion or response because at the time of anger there is no consciousness to listen to the reasons of the other party; and 4) Jaka includes sacrifice, generosity, support, assistance, public servicing, waiving of own anger, selfishness, and happiness for the other party, and compromise and sacrifice on some or all matters between the husband and the wife in order to make the family life happy. Although the time has passed over two thousand years, nowadays these four virtues for lay people can still convey the meaning of happiness of coexistence thoroughly

and apply to everyone in the society where we live in order to make the society full of love for one another.

From the above principles and reasons, the researcher has interested in investigating the promotion of family happiness among the people of Chiang Mai through the principles of virtues for lay people in order to analyze the problems of unhappiness among family members and the virtues used in the household affairs as well as to develop a model to promote family happiness. The results of this study can reveal knowledge about the process of promoting family happiness and enable the community and related agencies to develop a network in the management and promotion of family happiness, which affects the overall economic and social development of the country. In addition, it is in line with the mission of the university that provides academic services according to the Buddhism concept to society, community and localities, especially Buddhist studies, in order to focus on propagation of Buddhism, solving of social problems, application in everyday life to bring peace and guide the society in a creative way, and settlement of conflicts based on the principles of Buddhism [7]. Therefore, the researcher has interested in conducting this study.

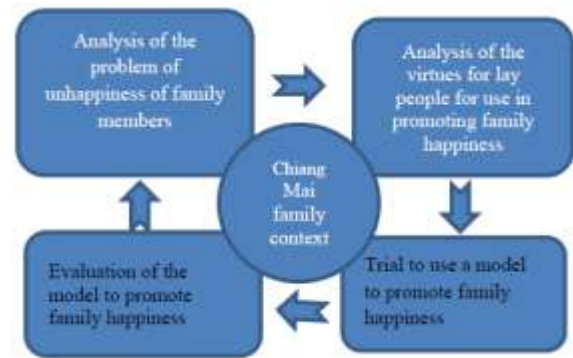
II. RESEARCH OBJECTIVES

1. To study the context and analyse the problems of the lack of happiness in the family of people in Chiangmai
2. To study the virtues for a good household life (Gharavasa-dhamma) applied to promote the happy family life
3. To create the pattern of promoting the happy family life
4. To try out and evaluate the model of the happy family life by using the virtues for a good household life.

III. RESEARCH METHODS

The samples and the informants consisted of 398 families living in the area of Chiang Mai Municipality for more than 5 years. The researcher selected the samples representing a single family, i.e. husband + wife with no children, parents + children, and single parent + children, all of which were characterized by differences in their family structure, economic status, and family conditions (families with and without Sample Family Award). The sample size was determined by using Taro Yamane's formula 5 and informants from 20 families involving in the activities and interviews, including five family and Buddhist experts. The instruments used in this research included a questionnaire, an interview form, an unstructured observation form, and an assessment form with a scale of 5 levels using the Likert Scale principle, i.e. very high, high, moderate, low, and very low. The statistic used for data analysis included percentage, mean (\bar{X}), and standard deviation (S.D). Data were analyzed and processed

by computer. Researcher has set the conceptual framework of creating a model for promoting family happiness in Chiang Mai province by applying good family life as follows:



IV. RESEARCH RESULTS

A. Analysis of the problem of unhappiness of family members

The problem of unhappiness of family members was at the moderate level in all four aspects. The results are shown in

Table 1 :

Table 1 : The problem of unhappiness of family members

Problem of unhappiness	\bar{X}	S.D.	meaning
1. Aspect of unreadiness and unpreparedness as a family	3.10	.51	moderate
2. Aspect of economic, social, and environmental conditions	3.21	.39	moderate
3. Aspect of society not recognizing the importance of the family	3.03	.72	moderate
4. Aspect of media influence	3.19	.49	moderate
Total	3.15	.31	moderate

When considering individually, it was found that:

1. The aspect of unreadiness and unpreparedness as a family was at the moderate level. When considering each item, the item with the highest mean was economic unreadiness interpreted at a high level, followed by social unreadiness, such as by having insufficient knowledge and ability to pursue a career and earn income to support their family, health unreadiness, psychological unreadiness with no adequate maturity to bear the burden of parenting, and age unreadiness, respectively;
2. The aspect of economic, social, and environmental conditions was at the moderate level. When considering each item, the item with the highest mean was economic downturn and higher cost of living interpreted at a high level, followed by economic problem within the family that is a reason to focus on working to earn income to support the family, social change in values and hasty daily life that affects family relationships, environmental problem unfavorable for occupation that affects family life, excessive expenditures and materialism leading to the debt, and improper values and

attitudes about the inequality between men and women, respectively;

3. The aspect of society not recognizing the importance of the family was at the moderate level. When considering each item, the domestic violence was regarded as a personal matter, making people in society not want to interfere with and provide help, followed by institutions in the society having no common consciousness and power to develop the family and prevent and solve family problems, respectively; and

4. The aspect of media influence was at the moderate level. When considering each item, the item with the highest mean was media influence playing an important role in changing the behavior of family members, followed by media instilling extravagant values, mescaline, and violence, media not paying adequate attention to family development, family members behaving alienated from real life and obsessed with the online world with less communication to each other, and media influence creating the age gap, respectively.

B. Analysis of the virtues for lay people for use in promoting family happiness

1. As for the aspect of unreadiness and unpreparedness as a family, the economic unreadiness had a high mean. It can be seen that the problem arising from the struggling economy within the family forces the family members to focus on working to earn more income for the family, causing emotional stress and unhappiness. Therefore, the family heads can apply the principle of "Khanti" because it means tolerance and focuses on working diligently with strong and unshaken confidence. In addition, it focuses on persistence and resistance to the obstacles of life. Good family heads must always be patient when faced with various events as well as must have a strong heart and withstand excessive intrusion without giving up on obstacles easily, such as by enduring hardships at work and profession to care for and nurture family members to the best of their ability.

2. As for the aspect of economic, social, and environmental conditions, the economic recession and the higher cost of living had a high mean. It can be seen that the current economic situation has problems and the high cost of living affects the livelihood. The expenditure does not correspond to income received, resulting in the debt. Therefore, family members can apply the principle of "Khanti" because they must endure passion and desire for unnecessary objects. Otherwise, it will result in a payment that exceeds the family status, incurs a debt, and cause the unhappiness.

3. As for the aspect of society not recognizing the importance of the family, the domestic violence was regarded as a personal matter, making people in society not want to interfere with and provide help, which has a moderate mean. It

can be seen that, at present, the interaction of families with community and society tends to decline, especially in urban areas where people in society live separately with no social events or cooperation in community and social development. Therefore, family members can apply the principle of "Jaka" because the sacrifice of personal interests or happiness to the other party causes the practitioners to see and care for the sufferings and needs of others, making them a non-selfish person who is helpful and generous with sympathy as well as who more likes to share and thinks of others than themselves.

4. As for the aspect of media influence, the media influence playing an important role in changing the behavior of family members had a high mean. It can be seen that, at present, everyone has the right to receive information. They can freely seek out information from various sources while the influence of the media has spread far and wide and improved the potential to access information anytime and anywhere with no limit. As the media is both constructive and negative, family members can apply the principles of virtues for lay people because nowadays the influence of media is up-to-date from various channels, including television, radio, telephone, computer, and print media. The stimulation or provocation can happen anytime and anywhere. The principle of "Sajja" means that family members must be honest and responsible for their duties as well as must not be misled by the media. The principle of "Thama" means that family members must have self-patience to the temptation of the media. The principle of "Khanti" means that family members must endure the craving and desire for unnecessary objects. The principle of "Jaka" means that family members must know to share their own happy time in media exposure for family members.

C. Trial to use a model to promote family happiness

Research target group who participated in the training paid attention and had willingness to learn actively. The researcher consulted with the priest lecturers experienced in the training, defined the training duration of one day, and determined the training content in accordance with the research and development objectives using the principles of virtues for lay people to enhance the happiness of the target group. The training consisted of academic activities directly focusing on enhancing knowledge and understanding of the principles of virtues for lay people and recreation activities focusing on useful joy and creativity, such as playing games to answer questions in accordance with the four virtues for lay people. After the training, the target group was encouraged to practice at their home, especially the behavior of good behavior consistent with the principles of virtues for lay people. After another month, the researcher asked the target group to respond to the assessment form again.

From the study of the situation, it could be concluded that the family lacked knowledge and understanding of the principles of virtues for lay people due to a deficient functioning structure. Family problems could be solved and strengthened for the better since family members were aware of the problems and wanted to seek a solution. Therefore, they were ready to fully cooperate and support the activities. In addition, the researcher also provided personnel with knowledge and capability to assist in the training. When the principles of virtues for lay people were tried through the activities of training to promote family happiness by applying these principles in conjunction with the roles and duties of each individual, it was clearer in self-practice. It was therefore highly likely that this operation would achieve satisfactory results.

D. Evaluation of the model to promote family happiness through the principles of virtues for lay people

The evaluation of the model to promote family happiness through the principles of virtues for lay people with the target group of 20 families was interpreted at the highest level. When considering each item, the item with the highest mean was application, after participating in the activities, of the principles of virtues for lay people to their roles and duties to enhance the quality of life of family members, followed by application of the principle of "Sajja" to the family to build trust and reliability between family members as well as to solve problems in the family after participating in the activities, application of the principle of "Thama" to the mind control, correction of shortcomings, self-restraining from doing wrong things, self-improvement to progress with wisdom while families participating in the activities could be a role model as a quality family, application of the principle of "Jaka" to the family members to listen to the sufferings, opinions, and needs of the spouses with no selfishness, and application of the principle of "Khanti" to the events or stories occurring in the family, including matters of economy, work, home, and relatives, respectively.

V. DISCUSSIONS

A. Problem of unhappiness of family members

The problem of unhappiness of family members for people of Chiang Mai in all four aspects was at a moderate level. When considering each aspect, the economic, social, and environmental condition had the highest mean, followed by media influence, unreadiness and unpreparedness as a family, and society not recognizing the importance of the family, respectively. Since the economy expands, the society is becoming more urban, and the livelihood of the people in the area of Chiang Mai Municipality is being stimulated for

consumption, the attitudes and roles of family members have changed, causing problems in the family's internal economy and forcing family members to focus on working to earn more income for their family resulting in emotional stress and no happiness. Similarly, according to the Department of Women's Affairs and Family Development, Ministry of Social Development and Human Security, as for the situation and factors affecting the family, the environmental changes have a direct impact on all families, especially the poor families who more face problems and difficulties than other families. In addition, the environmental changes cause some people to lose their lives and property while some families may have to migrate to other areas to earn money to support their families, causing separation of people in the family [8]. This may cause family problems with poor care for children followed by social problems. A loss of the family heads as the main source of income causes not only the psychological problems but also the problems of economy and ability to earn income, followed by the problems of livelihood and debt. Therefore, the family and its members must get prepared in terms of knowledge and skills to cope with these environmental changes in order to be able to help themselves and maintain their family in a crisis.

B. Trial to use a model to promote family happiness

The family lacked knowledge and understanding of the principles of virtues for lay people along with having impaired functions of each member of the family. From an analysis of family problems, economic problem within the family was a reason to focus on working to earn income for the family, causing parents to not have time to take care of their children. As for the society not recognizing the importance of the family, the domestic violence was regarded as a personal matter, making people in society not want to interfere with and provide help. In addition, the media influence played an important role in changing the behavior of family members after applying the principles of virtues for lay people in conjunction with the roles and duties of each individual, making it clearer in self-practice. Similarly, according to Varo Phengsawat [9]. The conceptual framework of principles, methods of operation, and various criteria of the system can be taken as a guideline for the implementation of the objectives.

C. Evaluation of the model to promote family happiness through the principles of virtues for lay people

The evaluation of the model to promote family happiness through the principles of virtues for lay people was done with 20 families participating in the activities and interpreted at the highest level because family members were aware of the problems and wanted to seek a solution to solve them, so they

were ready to fully cooperate and support the activities. In addition, participation in these activities also gained knowledge and understanding in applying the principles of virtues for lay people in their daily life in order to create happiness for the family, making the evaluation results at the highest level. Similarly, according to Pralong Krutnoi, the evaluation is important as an activity that plays an important role in the decision-making process to develop useful tasks, such as providing useful information for determination of policy or direction of operations of the organization as well as for improvement of media, work pieces, plans, and projects to be appropriate before implementation [10]. It also makes the persons in charge of the tasks/projects know the weaknesses and strengths of tasks that can be improved to be more efficient. Moreover, it can reduce the chance of waste in operations and make it known whether any operation invested has the benefit or it is worth or it should continue.

VI. CONCLUSION

1. Economic problem within the family that is a reason to focus on working to earn income to support the family. So Institutions in society, both public and private sectors, should have joint strength in developing the family and preventing and solving family problems because the government alone cannot fully build and develop family institution to the strength. The participation of all sectors is therefore important, especially the people themselves who have to seriously look back and give importance to their family, and The factors that support the family to increase warmth and happiness should be studied to obtain new information and elements that affect the promotion of family happiness and warmth and get a quality family.
2. The domestic violence was regarded as a personal matter, making people in society not want to interfere with and provide help. So Institutions in society should raise their awareness of the reduction of social attitudes that view domestic violence as a personal matter, making people in society not want to interfere with and provide assistance, and of the rights and welfare that should be received by law to find channels for access into such rights and welfare, and The warmth of the family should be compared between before and after the family and community development according to the family development policy or plan implemented by the local government organizations or other agencies to indicate the effectiveness of their operations.
3. Unpreparedness as a family, the economic unreadiness had a high mean. It can be seen that the problem arising from the struggling economy within the family forces the family members to focus on working to earn more income for the family, causing emotional stress and unhappiness. So Public

and private agencies should come to support by giving advice and consultation on family management in various parts, including roles of parents, family member relationships, family self-reliance, and family recreation activities, to promote greater well-being, and The process of shaping each spouse to have patience in resolving problems or conflicts in the family to make them happy should be further studied.

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Buddhist of Guidelines for Pollution prevention and Solution

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Abstract— *This research aimed to study pollution in the Buddhist scriptures and practices to prevent pollution problems in Buddhism. The results showed that Theravada Buddhism has Discipline for preventing any cause of pollution or the purity of the environment. Disciplines also have points contributing towards the practice to Nature and Environment. They are more important for living. Though in the Buddha's time, there isn't more problem about nature and the environment, the Buddha laid down disciplines about the environment. Whatever disciplinary codes the Buddha prescribed for protection against pollution. The Bhikkhus have to abide by for society.*

Principles and Guidelines for the prevention of pollution in Buddhism. Buddha prescribed Discipline for Guidelines in the prevention of pollution and conservation of natural resources and the environment by not breaking the ecological balance. The Bhikkhus are part of human society and there are rules and discipline to regulate their life way. The discipline of Bhikkhus is in accord with the conservation of nature and environment and it can be applied in everyday life.

Guidelines for the prevention and pollution according to Buddhism. The Buddha had the vision that all plants were supposed to take care for the animals and be cherished no less than animals. In Discipline, Buddha prescribed Discipline that Bhikkhu do not destroy the woods or cause loss of greenery, Potacam of all types, prohibits excavation, do not defecate, urinate or spit saliva on the tree or in rivers, streams, etc. Discipline should be for protecting animals and cereals. Bhikkhus should not abuse rights in his livelihood. There are disciplines that show the protection and reduction of pollution of air, water and soil all time

Keywords— *The Buddhist Guidelines, Pollution, prevention, Solution*

I. INTRODUCTION

Natural environment is very essential for a man and living things in the world. In other word, man is a part of nature as he or she felt to the law of nature: birth, unsatisfied, pain, aging and death. Seriously speaking, man couldn't live without natural resources. Nevertheless, in the time of the Buddha the crisis of imbalance ecosystem was not mention at that period. A man not yet engaged with the new technology; thus, the social change went by little by little, the ecosystem still stay balance.

With the slow and gradual changes, a man was not even aware with the changes, and it was not difficult for them to adjust themselves to suit with nature. Environment here also includes what later created by a man in order to serve and fill in the need of mankind.

Natural resources that naturally originated are air, water, soil, ore, and living things on earth (vegetation and animal).

Natural resources created by a man are public assistance such as road, dam, including social institutes. (ChatchaponThongsuntonsong, , B.E. 2546 (2003):

146-149)[1]. Buddhism teaches a man to live in peace...selfishness brought to mass suffering and it is the main cause of great natural disasters. (BuddhadadassaBhikkhu, B.E 2533 (1990): 14). [2]. The Buddha mentioned in Vinaya, disciplinary rule for Bhikkhus and Bhiksuni, about natural preservation with the rule not allowing to drop garbage into water and public, cutting a tree and killing animal is prohibited for a monk. The monks should be compassionate and kind toward all beings on the basis of principle of natural preservation. (Vin. II/425).[3].

All of us want to live with the good environment that have fresh air, safety food and clear water, safety home and working place, no pollution and harmful diseases in the society. Therefore, Human relationship with nature must rely on each other when humans use resources. The lack of consciousness naturally affects nature for self and society. (Phra Sangjun Thitassarro (Leksri) and Phramaha Mit Thitapaño, B.E. 2562 (2019): 309) [4].

In this early decade, it was the "decade of revolution" but the problem of natural decadence was also taking place on some part of this earth. This problem that emerged from both developed and developing countries such as water pollution

and natural decadence. It occurred with therapidly ceasing of petroleum, ore, forest, vegetation, and wild animal in the ecosystem.

All natural crisis were directly related to the living of mankind. We plan food on the soil, but the soil is full of pollution from chemical fertilizers. It takes very long time to disintegratesuch chemical and recover the quality of soil back. Water is another essential natural resource for all living lives in all activities, daily living, trading, transporting, and traveling for relax. But, what we could immersing if water is polluted.

Nowadays the population of many countries are rapidly increasing, especially, in the town. This lead to the insufficient basic facility to the people, for instance, living place, water resource, sanitation, crowded together with building upper and underground roads in the capital city, wasting drain water from the factories, – all these in the same time cause contaminatedair and water that eventually cause great harm effect to the health of the people day by day.

Thailand is one of the countries that are encountering with the crisis of environmental pollution due to the crowded emigration to the city, policy of making the economic progress, factories influence, mass of vehicles, careless waste management of housing and factories – all these lead to mass pollution that have great impact to health of the people inevitably.

Therefore, in this study, researcher interest to study on the crisis of pollution in the current situation and acquiring for the suggestive resolution according to the Buddhist teachings as an alternative and effective method to resolve the problem.

II. OBJECTIVES OF RESEARCH

1. To study the issue of pollution as depicted in the Buddhist scriptures.
2. To study the resolution and method in solving the crisis of pollution in Buddhist point of views.

III. METHOD OF RESEARCH

This research was conducted based on Qualitative Research Methodology and the scope of the study could be divided as following:

- 1) Primary Sources: collecting the source from Pali Canon both in Pali and Thai language (Mahachulalongkornratjavidyalayaversion) including Pali Commentary and Sub-commentary.
- 2) Secondary Sources: study on the research paper, academic works, and related document.
- 3) Collecting the result of the study, categorizing and analyses what had been found, concluding and present the result of the study.

IV. CONCLUSION

4.1 *The issue of pollution as depicted in the Buddhist scriptures.*

Buddhism very much concerned on the method to end the sufferings and it placed the practice toward surrounding nature at the primary point as all living would not be possible without natural resource and environment. Although in the time of the Buddha there was no problem of natural problem, but, with the long vision, he presented the rule to the Bhikkhus not to pollute natural environment.

One important factors that cause air pollution are smoke and dust. It absorbs to our

bodies through Respiratory especially to the lung and might leading to allergies at first and get inflame in sinus, pharynx, windpipe, and related diseases in Respiratory and lung inflame at last. The level of the serious health effects depending on the amount of the smoke and dust, types of air pollution, the way and rate of breathing, and how often we stay in the polluted area.

4.2 *The method and resolution in solving the crisis of pollution in Buddhist.*

1. Air pollution

1.1 *The methods in preventing the problem of air pollution:*

The main important point of a disciplinary rule in Buddhism is mainly focus on natural and environmental preservation for the sake of all humanity and all living creature. The process of earning living of a man shouldn't making disturb or overuse of the natural resource and environment in the ecosystem. As man can't be separated from nature, thus, it's very essential to preserve the balance in the ecosystem. The Sangha's one unit of the society and there are the rules in walking on the spiritual path that have a part in preserving nature and environment: for instance, on the issue of air pollution, there was the story about the Bhikkhus of Sungsumaragira city making fire for the purpose of warming in the winter. There was an unexpected event the fire burring on the wood in which the poisoned cobra was there, the Bhikkhus ran in mess for safety. From the event, the Buddha prohibited the monks not to making fire in the forest those who immigrated the rule was considered as Pacittiya Offence (an offence entailing expiation). This is one of the example that Buddhism also concerns about air pollution and unexpected danger from wildfire.

Nowadays the smoke that emerged from different part of the city, in fact, cause a lot of negative effects to the whole environment and that of society, economic, traveling activities, and making harm to health.

Evidently, the statistic in many city of Thailand show the patient that had got effected from the smoke and admitted in the hospital mostly were heart disease, Respiratory, laboured breathing in asthma, and eyes inflame. Both organic and inorganic smoke are the causes of allergic reaction, pneumonitis, and fibrosis.

The preventing methods for this issue according to Buddhism is already mentioned above ,that is, the rules on not making fire for unnecessary purpose in order to stop making smoke and dust that cause big harmful to health.

1.2 The resolution for air pollution:

The disciplinary rule presented by the Buddha on not making fire in the forest was to preventing the dangers of animals, polluted soil, and trouble smoke in the ecosystem. The Sangha can bring this practice to discuss with the lay devotees in order to resolve the problem of air pollution. Therefore, Buddhist disciplinary rules are very useful in preserving the natural resource and environment.

The preservation of natural resources and environment by keeping the balance of ecosystem should begin with presenting the effective law in the society. This is to enforce the people to realize the important of environment.

The Buddha presented the rules with the vision that as every unit in the ecosystem is depending and related to each other, noting could live by its own. Hence, it is very important to comprehend on this point for the sake of all walks of life in the society.

2. Water pollution

2.1 The methods in preventing the problem of dirty water pollution: as water is very important resource for all living creatures, mankind, plants and animal all need to consume water. Water is available in many places: on earth, underground, in the air, or even in our bodies. All of our activities need water to be completed: eating, consuming, using in public welfare, bath, making foods, washing, economic activities, producing electricity, medical purposes and so on. Hence, water is the source of lives, in order to preserve water sufficiently for living, we have to have proper methods in utilizing water.

Having seen this important source of living, the Buddha presented the disciplinary rule for the Bhikkhus not to defecate, urinate, sprinting out saliva onto greenery things (plants) and water. This rule was intended the monks to realize and see the importance health and sanitation of the Sangha Order and the people. In fact, this disciplinary rule was applicable for all walk of lives in the society in keeping water clean and safe to consume.

As water is the source of lives, preventing the dirty and polluted water is the responsibility of all member of the society in which could be summarized as following:

1) Not throwing or discarding wastes, defecate, urinate, used lubricant into the river.

2) Not letting wasted washing water from the houses to the river including throwing powdered detergent and medicinal liquid into the river because it causes bad impact to the plants and aquatic animals. More importantly, it is very important for everyone to use water carefully and save.

3) Reduce the using of chemical in the field of agriculture and houses, because it would be washed to the river when there is raining and making harm to aquatic animals and those who consume them. (ChatchaponThongsuntonsong, B.E. 2546 (2003): 146. [5].

Water is essential natural resource for all living creatures. It is the origin of other natural resource such as forest, tree, and plants – the source food of all. Therefore, it is our duty and responsibility to help each other in wholeheartedly keeping water clean and safe for the long run.

2.2 Resolution for polluted water: the Buddhist disciplinary rule is useful in resolving the problem of polluted water as it presents the cause of dirty water and appropriate behavior in correcting this matter. It is very important to fostering and making other understand the root cause of the problem, the following impact, and then find out the solution to encounter with the trouble.

Regarding on the important of keep water clean, in the Vinaya Pitaka once the Buddha present the rule not allowing Bhikkhus to play in the Arivadi river thus, “Oh monks it’s not proper to play in the river like this, lay people may lose faith on you and in the Buddha-dhamma, form now on those Bhikkhu who play in the river is considered as Pacittiya offense.” (Vin. (Thai) II/335/470.)[6].

Moreover in KhuddakanikayaPetavatthu the Buddha said that “ those who don’t keep water clean, polluted water, destroy in the sources of water is considered as a lot of Papa (evil) – as all living being need water to carry on their.” (Khu.Dha. (Thai) XXVI/234/205). [7].

The study found that there are many rules and useful suggestion in the Buddhist disciplinary rules and that of Buddhist teachings placing the importance of water in the ecosystem. However, the Buddha wants the Bhikkhus to be a good example as the leader of goodness in every aspects. This result of the study shows that the Buddha very much concerned on the importance of water and pointed out the way to encounter and resolve with this problems. Although what he said is 2600 ago, but it could be apply in the present day.

Throwing the wastes into the water or river causes a lot of serious impacts and each year the government have to spend

unnecessary buggiest for clearing the wastes and clean the river. The Buddhist disciplinary rules could be the guiding methods in fostering the importance of water resource, not making river dirty by several means of activities.

3. Soil pollution

3.1 The methods in preventing the problem of soil pollution: in the time of the Buddha, people believe soil or earth is alive; thus, they don't make harm to the soil, especially for the priest, digging soil was prohibited. Once the Buddhist monks brought some soil to repair their residence, the people went to report to the Buddha about what was happened, the Buddha then present the disciplinary to the monks not to making any harm to the soil because by doing such the activities might kill living things lived underground.

The story of this disciplinary rule was emerged from the event of the groups of Bhikkhus living in Arawi city, they dung the soil and make use for building the resident (*Kuti*). The people saw what the monks did and then go to report to the Buddha improper actions of the monks then the Buddha call the Bhikkhus for gathering and present the rule not to dig the soil thus "those Bhikkhus who dig the soil or call other to dig for is considered as Pacittiya offence". (Vin. (Thai) II/85/274). [8]. The monks who committed this *Sikkha* must confess his wrong action in front of the Bhikkhus and making promise not repeating the same action. The Buddha present this disciplinary rule in order to keep faithful of the people toward the Sangha and to preserve the quality of the soil including the live of living creature living underground. The disciplinary rule, in fact, is the protection for polluted soil and live of animal.

Soil is one of the essential natural resource, all live on earth stand on the soil and making use of it for several purpose such as building the houses, agricultures, building dam, super ware, and even physical parts of living creature is consisted of soil. Thus, it's very necessary for us to fully utilize the soil in the correct way for the use of the long run.

If we examine carefully on the disciplinary rule presented by the Buddha regarding the proper ways to act toward the soil it is clear that mankind should make use of soil in the righteous ways, keep the balance of ecosystem, and not disturbing other fellow beings. For instance, one of the Sutta reported that once the Buddha coming along with the groups of Bhikkhus from the Gijakuta Mountain, he saw the nice resident house of the monk name Dhaniya that he build for raining retreat, he made with the soil and it looked like lady bug. The Buddha criticized on the performance of Venerable Dhaniya "Oh monks what Dhaniya did is totally wrong and committed without righteous consideration, you all may destroy his soil resident house. From now on those who dig the soil and make use for any purpose is considered as Dukkata offence (an

offence of wrongdoing)" (Vin. (Thai) I/79/3). [9]. Those two disciplinary rule focus on not making use of soil for personal purpose and any activity that may cause bad harm to the soil. In other word, it place much importance on preserving the soil, preventing the monks to kill living animals live underground, and preventing the pollution at the whole. Because, in order to make the resident house the monks need to moldsoil and burn it in the hot temperature, as burning also cause several pollution. And, it's not proper for the monks to interest in building resident house, their total goal is cultivation for being free from suffering.

3.2 Resolution for polluted soil:

The disciplinary rules over the method in resolving the soil pollution in which it reported that the monks who dig the soil is considered as Pacittiya offence representing there should be the law to take action on those who polluted the soil. (Ibid. P.274.) [10]. It tells the monks not to be greedy and cling with attachment which leading to unlimited demand and that make great harm to the whole ecosystem in the long run, but to be with contentment, preserve environment, be gratitude to natural resources, and earn living without disturbing other fellow beings. Therefore, the Buddhist rule on this issue could guide us to earn the ideal in encounter with the soil pollution. If we examine carefully on the method of preventing and resolving the crisis of pollution according to Buddhism, there are the teachings that mostly place on fostering the conscious mind in the individual on the importance of ecosystem and the cycle of depending inter-connected living of all lives, be gratitude to nature, be contentment and moderate in using the natural resources, free of violence – all these principles lead to peaceful environment. There was no place of encouragement on over consumption in Buddhism; on the contrary, it supported the practice of fully utilized natural resource with care and respect.

The result of the study found that the Buddhist disciplinary rules were the path to live natural environment in the balancing and inter-connected cycle system. Moreover, they stood as the methods and strategies for preventing and resolving the problem of pollution from the direct experience, the tracked stories in the Vinaya Pitaka, that could be implemented in the current society.

The Buddhist principles for preventing and resolving the problem of pollution were the principles that enhance and support the quality of live and effective means to encounter with the problem, beginning with fostering the conscious mind for the youth and constitution of family, as family is the most influence factors for the youth. And, children today is the qualified citizen in the future; thus, it is very essential to forester them the righteous path to act toward nature.

However, the methods for preventing and resolving the pollution could be summarized as following topics:

Firstly: it's very important to legislate the law in preserving the natural resources and environment in order to keep the balance of ecosystem. The good example for this matter could be found in the Buddhist disciplinary rules that could be implemented for the current situation.

Secondly: implementing the ideal from the Buddhist disciplinary rules on acting toward nature as the guideline in foresting the conscious mind in preserving natural resources and control the pollution from different originated places.

Third: there should be the effective control on sing the soil and categorized the polluted soil according to the originated places in order to protect lives of the living creatures and preventing the problem of polluted soil.

Fourth: the Buddhist teachings encourage and support in fostering the conscious mind in being gratitude to everything living around either natural resource and environment including be moderate in consuming natural resources and live with nonviolence. This teaching is also known as the middle path, it is the path of equivalence or balance of the thing in which the moderation is concern in every activities for earning living. Nevertheless, the effective ways to resolve the crisis of all pollution, air, water, and soil are educate the people to realize the seriously bad impact of the pollution and fostering the conscious mind of keeping the balance in the ecosystem for the well-being and plenty of all lives.

V. SUGGESTION

The boundary and context of this study might not cover all topics and detail on the issue of pollution in Buddhism. Those who interested could do further studies on this matter with the following suggestions:

1. There should be the organization that takes the responsibility on preventing and resolving the problem of pollution and the cooperation of the member of the society is needed.

2. The campaign on serious impact of ruin environment is also important.

๓. Learning activities in the school should include the topic of fostering the conscious mind in preserving natural resource and environment especially beginning from the elementary schools.

VI. CONCLUSION

The crisis of pollution in the world in the present situation represent the fail and week management of natural resource and environment of mankind. The main factor of this problem is over consumption of a man in all level: family, society, and country, and this cause poor quality of lives. Hence the

righteous mean to solve the problem of pollution should play intention to the quality of live and well-being of the people.

Satirically speaking all the world crisis, economic, social problem, environment, and pollution, are originated form mankind that of selfishness. It would be whole if a man keep in mind that "we all are brother and sister, we all have duty and responsibility to complete, we all should follow the national law, and we all could correct the troubles that we made". Therefore, all parts of the social members need to give cooperation in having a part of responsibility on the practice toward nature.

Solving the problem in the systematic way by implementing the Buddhist principles and disciplinary rules in the current situation is one of the alternative choice in correcting the crisis of pollution. Educating the youth, the new generation of the world, beginning at the early age in the family is essential, as family is the first constitute and it is one of the practice that supported the process in creating the qualified citizen in the soon future.

VII. ACKNOWLEDGEMENT

The discipline of Bhikkhus is in accord with the conservation of nature and environment and it can be applied in everyday life. Therefore, Buddha prescribed Discipline for Guidelines in the prevention of pollution and conservation of natural resources and the environment by not breaking the ecological balance. The Bhikkhus are part of human society and there are rules and discipline to regulate their life way.

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Potential of Social Capital at Ban Wat School "Bowon" to strengthen sustainable local development of Muang Sub-district Administrative Organization, Mueang District, Roi Et Province

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Abstract— The objectives of this research were to study 1) the Context area of Ban Wat School 2) Conceptual base for managing the social capital, based on "Bowon" 3) Model for potential enhancement of social capital at Ban Wat School (Bowon) to strengthen sustainable local development. This research uses participatory action research, in-depth interviews and small group chat as means of data collection, from key informants, which consist of 39 people. From various section such as institutions, organizations and people in the area. The content of the data was analyzed and presented as qualitative data. The results of the research were as follows: 1) Sub-district context around the city, In terms of Political Administration. They allow people in the community to participate in thinking, decision making, participating in the planning, participating in assessing, and taking part in benefiting through the form of committees. In terms of the economic aspect, the majority of the population work in the agricultural sector and they gather together to form a community enterprise to increase their income. In terms of the social aspect, they have strong community leaders, who brainstorm and solve problems. In terms of cultural and traditional aspect, they have some inherited beliefs and rituals. 2) Conceptual base for managing the social capital, based on 3 reasons: 1. Participatory management 2. Principle base of justice 3. The needs of the community. 3) Model for potential enhancement of social capital at Ban Wat School (Bowon) to strengthen sustainable local development consist of 9 types: 1. Build knowledge and understanding by managing knowledge in all dimensions 2. Allow and Create people and leaders to drive the goal, and ambitions 3. Structural management rules and regulations 4. Management that leads to action in various forms 5. Establish a learning process 6. Integration of local wisdom 7. Activities that link conservation with the beliefs of the community. 8. Build awareness and participation 9. Build networks and community models for the development of social capital.

Keywords— Social Capital, Strong Local Community, Community Participation

I. INTRODUCTION

Social Capital first appeared in the discussion of Hanifan (1920) in his book rural school community centres, which describes different things used to create social capital in everyday life, such as building friendships, a relationship of people in the community, which will lead to assistance, sympathy, and help create solidarity in the community. Social capital is a new dimension in social development under capitalism by focusing on social aspects that are systematically linked to the way of life. It is a form of social

relationship that results in cooperation at both individual, group or organizational levels. [1] Robert Putnam (1993) utilized the concept of social capital in development, and the result shows that good relationship in society can lead to economic development and create sustainability. In the following years [2] Putnam (2000) [3] and Worawut Romrattanaphan (2005) [4] analyzed and pointed out that, the process of social capitalization starts from the people in the community, having a good value system, will create a good relationship among the people in the community as well, which will lead to the strength of the community. Besides, there are also many definitions of social capital, for example,

Putnam (1993) views social capital as an economic benefit that allows the forming of social relationships based on mutual trust, resulting in ease of economic operations and a link between the small parts of the community, which is values, people's culture, and mutual trust [5]. In the view of Pierre Bourdieu (1993), social capital is social networking capital. Presumptuousness, respect, which means an economic advantage in politics, and social advantage. The amount of capital depends on the size of the social network of relationships and the amount of capital in the network. Based on cultural capital and economic capital with benefits of a fundamental factor in the formation of social networks. [6] Word Bank (1999) describes social capital as institutions, relationships, and norms, with both quality and quantity characteristics of social interaction. It's like the glue that holds those institutions together, which can enable people to cooperate for the most desired goals. In addition, social capital may be viewed as the attitude and value generated by inter-community work and economic assistance and development of the community from the outside. [7] Additionally, Worawut Romrattanaphan, (2005) [8] and Suriyajaras Techatanminasakul (2020) [9] view social capital as informal values that are consistent with morality. Its focus on close relationships, trust and values that contribute to the person's generosity. Help each other, trust each other, or reciprocate each other. in good norms and customs and there is a network that appears in the organization or groups that focus on the common good, moreover, social capital is essential and plays a role in social development, assisting underprivileged under 2 main principles: 1) The principle of reciprocity and 2) The principle of mutual benefit.

Therefore, social capital refers to the relationships that occur between individuals. Becoming a networking group that can create some activities to drive both economic and cultural sector, including being generous, unity of people in the community, culture, traditions, goodness, etc., which contribute to helping each other, and be able to solve problems that arise in the community and strengthen the economic system in the community.

Community development using a knowledge base is a process of building the sustainable strength of the community. Communities that have the potential to be self-reliant must rely on culture, traditions, rituals, beliefs and apply local wisdom to solve problems that arise in the community. They must be able to control and manage local problems with their wisdom in various fields, to become a strong community, ready for external forces [10] in community development using knowledge bases involved in knowledge management. This is the process of collecting, creating, organizing, exchanging and applying knowledge in the community by

developing a system from data to information, to create knowledge and wisdom in solving problems in the community [11]. By participation of both the public and private sectors, agencies, communities, houses, temples, schools (Bowon) and their contributions are explicit to the public. Furthermore, It is an important part to increase the potential of social capital, by building more volunteers in the operation. Focus on coordination between houses, temples and communities [12] appropriately. Therefore, the research team are to promote the potential of Ban Wat School (Bowon) social capital to strengthen local sustainable development. To find the potential for the strength of the community, culture, and way of life of the local people, as well as natural resource capital and social capital available in the community. The results of the study can be used as a model for the development of social capital that is appropriate for the context of other areas in strengthening local development both economically, socially, and environmentally following local needs. This will contribute to the strategic development plans of local authorities and serves as relevant ways in utilizing social capital, house, temple and schools to be "Stable, Lasting, and Sustainable."

II. RESEARCH OBJECTIVES

The objectives of this research article were 1) to study the context of social capital in the sub-districts around the city, Mueang District Roi Et Province 2) to study the concept of social capital management at Ban Wat "Bawon School" and to strengthen the local community of the Sub-District Administrative Organization around the city, Mueang District, Roi Et Province 3) to study the model for promoting the potential of social capital at Ban Wat School (Bawon) to strengthen local sustainable development

III. RESEARCH METHODS

This research is qualitative research, with both pieces of research from the document and field research. The research consists of the following steps.

A. Key informant: The researcher selects the key informants by purposive sampling, with selection criteria as follows: A person, institution, group, organization, residing or activity or having operations related to social capital in the sub-districts around the city who lived in the area for not less than 1 year, which can be classified into 4 groups of key informants as follows:

1) Key Individuals are representatives of District Administrative Organizations, Clerks, Districts Administrative Organization members. Heads of government agencies, village headmen, consist of 15 people.

2) Key Institution consists of the director and teachers from the school. Child Development Center, Director and staff of District Health Hospital, Director of Center for Non-Formal and Informal Education, consisting of 11 people.

3) Representatives of private organizations, comprising a group of 5 business operators

4) Representatives from Core groups consists of the chairman of the committee and members of community organizations, groups/clubs, learning resources and people, consist of 8 people.

B. Data collection Tools

1) Interview form on issue-based on fundamental thought, management, and model for promoting social capital potential of Ban Wat School (Bawon) to strengthen local sustainable development. Informal and non-formal interview.

2) Participant and non-participatory observations on the use of social capital, schools, in local development and social capital context, activities related to strengthening sustainable local development

C. Date Analysis

Data were analyzed and synthesised using content analysis methods. By analyzing the model of social capital management, houses, temples, schools and presenting a model to promote the potential of social capital at Ban Wat School (Bowon) to strengthen local sustainability and explore the components according to the nature of the empirical data by using qualitative data for further analysis and synthesis.

IV. RESULTS

The results of document analysis and from interviews, small group discussions and participatory observation. The research team would like to summarize the study results according to the research objectives as follows.

Research Objective No. 1 the context of social capital in the sub-districts around the city, Mueang District Roi Et Province. There are administrative areas of 20 villages. Social capital, Ban Wat School continued to develop localities and has a form of operation. It is a link in the collective thinking, co-development and creativity, which can be divided into each aspect, **Political Governance and Administration**. The area is predominantly rural, with an average density of 656.21 people / km². They have a concept idea of managing the sub-district like “focused on creating a model and create awareness of participation among the people through the use of social capital models of the district such as a village or House capital, such as Community Sufficiency Economy Village Award, Self-management village award, promoting the learning of various occupational groups. Creating rules and regulations for community

collaboration by allowing people in the community to participate, think, make decisions, share plans, and joint evaluation, joint benefit patterns through community committee, so that communities can manage themselves.

Economy aspect, the majority of the people engage in agricultural practices. The main problems of farmers and people in the community are low prices of produce, high production costs. They borrow money to invest, thus cause a grouping called “Money Management Fund” such as the Kong Tun Mae Kong Pen Din (Mother Earth Fund), village fund to raise funds and help members so they can borrow to upgrade their occupation. **In terms of Education and Society, Religion, Tradition and Sport;** “Sufficiency Economy Village Prototype” was established to be a learning centre that promotes the application of the Sufficiency Economy Philosophy to the community and is also a learning centre according to the learning curriculum of the Center for Non-School Education and Informal Education, Mueang Roi Et District. To create educational opportunities for people in the community, there is also a "Community Internet Service Center" to promote knowledge of communication technology, to give people in the community the opportunity to find knowledge and establish a "Child Development Center" as a learning centre for cultivating youth in the community, learn the way of life and local wisdom, such as learning to grow vegetables, learning to make a group career in the community and create a sense of community love.

Research Objective 2: Fundamental thinking base of Ban Wat School, social capital "Bowonn" to strengthen the local community of the Sub-District Administrative Organization around the city, which consists of 3 main ideas. **Thinking base 1:** participatory management under holistic development, focus on coordinating departments and parties to create cooperation in development, believing that “development must have the power of many sectors. Therefore, it will result in efficiency and sustainability.” Ban Wat, School act as mechanical support development and work link through the creation of a collective thinking approach at 3 levels: (1) individual level, which divided roles and duties; they can design work processes efficiently, focus on developing the potential of the team (2) at the organizational level, both public and private sectors understand and were able to work together systematically; and (3) at the community level, participate in the development along with the local community by using participatory processes as tools for people development, job development, and building a public spirit in working together. **Thinking Base 2** focuses on development based on justice. Focus on the interests of the community by distributing income equally not politically. Provide opportunities for all citizens to participate in

thinking, planning, and solving problems. "There is no discrimination in management, welfare management in the community, utilities every community must have access" and allocated according to the needs of the people. Use the community forum as a tool for district development and unity building, leading to the preparation of a "Local Development Plan" that meets the needs of the community. and Lastly, **Thinking base 3:** we visit the area to reach the needs of the community, there are meetings to collect information on the needs of the people continuously. "Every issue, every voice must come from the facts in the community and the suffering of the people comes first". Furthermore, to monitor the operation and adjust the work process to be in line with the context of the area, driven by houses, temples, schools to achieve local development plans as a tool for designing activities or design local development projects that are on point and following the context actual space requirements. The strengths of accessing community needs give the community confidence and participation in working together. As mentioned above, the social capital of houses, temples, and schools was used as a base for developers to create learning in organizations, communities, and learning resources. Until able to integrate various works, with 4 main organizations in the area (local, government and the people) as a mechanism to drive work to strengthen the community

3) There are 9 forms of social capital promotion for Ban Wat School (Bawon) to strengthen local sustainable development:

1. Building knowledge and understanding by managing knowledge in all dimensions.
2. Building people and allow the leader to carry the people along.
3. Common management structure, rules,
4. Management that leads to various forms of action
5. Create a learning process together.
6. Integration of local wisdom
7. Activities that link conservation with community beliefs
8. Create awareness and participation.
9. Build a network and model for the community on social capital development.

V. DISCUSSIONS

A model to promote the potential of social capital at Ban Wat School (Bawon) to strengthen local sustainable development in the Sub-District Administrative Organization area around the city. Mueang Roi Et District Roi Et Province. Ban Wat School's social capital potential succeeded in driving work because there was a systematic way of accumulating social capital and utilization process to truly strengthen local development. As can be seen from the leaders who have good vision. There are community leaders and researchers who have the potential to analyze, connect and apply community data to further improve the management of the work systematically. Empower the community to have leaders, who

are capable of being team driven. The result of our research was consistent with the study of Nittaya Prugratok (2015) [13] which found that social capital is a type of capital that arises from the search for community potential. Both from the relationship of people in the community culture, traditions and beliefs social network community organization and community leaders. This will lead to strengthening local sustainable development in all 4 dimensions. Furthermore, Ban Wat School also has learning resources within the sub-district that support the creation of a self-reliant community, totalling 44 learning resources. Spread over 20 villages, until it can and drive a learning exchange process that creates changes both inside and outside the area. This is consistent with the study by Chalard Chantarasombhaht and Tantawan Singkeaw (2011), which found that community health development, can apply the knowledge set to improve the health of people in the community in all 5 areas, such as body, mind, society, intelligence and environment. through learning activities from "learning resources" that exist within the community [14]

This participatory learning makes the school, the house has the potential to drive development work. By being able to connect collaboration between 4 organizations, namely local, ward, departments and the people, in determining the direction of the workers' movement. This is consistent with a study by Surasingh Sangsod and Manus Suwan (2020) which found that integration of people, money, work, and all sectors, both internal and external departments will lead to the problems and needs of the people in the area. Also, Social capital was done together think together, collaborate, and develop the area systematically and concretely [15].

The results of this research also cause the process of "Creating sustainability" through collaboration between houses, temples, schools and network partners to drive development. The "community supports each other," they create change based on social capital and resources at existing training and create a mental focusing imagine volunteering to the community. Focus on the common interests, a fine way of thinking and visual activity in the Black Hills life to turn to self-reliance. before relying on external factors This is consistent with the study of Benjamapon huajiam (2017) found that the wellness empowerment program of Nam Phut community are positive reinforcements regularly and situational negative reinforcements. They will be able to develop the community well, and lead to the creation of a learning process, which results in sustainable development as well, as adding value to local resources can be integrated into the daily work and reflect the sustainable development results at the local level.

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Therefore, there is strong management and significant changes for local development. [16].

VI. RECOMMENDATIONS

The research team make some policy suggestion, and suggestions to the community and suggestions for future research are as follows.

Policy recommendations: From the research, which found that systematic social capital management can be a model for sustainable community development. Ministry of Community Department and Community Development Agency can apply the findings from this research studies as a guideline for policy and project formulation. To make community development operations more systematic and in line with the social capital context of the community.

Practical suggestions: Communities that want to develop themselves sustainably, can use the findings as a guide for the study of community social capital, Then utilize different existing capital in the community for maximum benefit. Also adopt the social capital management model for sustainable community development as the core for community development and for strengthening social capital In this regard, the community should adopt the aforementioned model and adapt it to suit the context of each community as well.

Suggestions for Future Studies for the next study, there should be a study on the application of local knowledge in the development of local tourism, by using the base of local wisdom and culture as a sustainable tourism resource base

VII. CONCLUSION

From document studies, observations, interviews, group discussions to analyze the context of social capital management idea base and social capital capacity promotion model of Ban Wat School (Bawon) to strengthen local sustainable development. We, therefore, summarize that social capital reflects the relationship in society (Social Relations) both at the individual level, family level and community level. Local organizations can collect, recycle, rebuild, to raise funds, resources, knowledge, or development potential as well as the ability to adapt to solve community problems. Based on cooperation, mutual trust and commitment. There is a common activity and an intensely shared value system. Moreover, social capital is a social force for cooperation through social relationships. causing the community to develop and strengthen community. Therefore, it is very important to use the existing capital in the community as a base to make a change in social and environmental development. Social capital potential can be undertaken on community strengthening. However, the

potential of social capital is applied in various activities that allow people in the community to participate and these activities are like a public space for people in the community to meet exchange ideas, create a common learning process and building good relationships with people in the community as well.

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Chinese LGBT Tourist Motivation Traveling to Bangkok

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Abstract— LGBT tourism has been considered as a potential tourism segment due to the purchasing power. It was believed that LGBT tourist were likely to choose the destination where offered not only attractive but also LGBT friendliness service. Therefore, countries and cities has been developed the destination to attraction them. This research aims to study tourist motivation of Chinese LGBT tourists traveling to Bangkok. The quantitative research approach was employed. The data were collected using questionnaire survey. The data was analyzed using descriptive statistic analysis such as frequency and percentage, mean, and standard deviation. The hypothesis was tested using inferential statistics analysis. T-test and F-test (One Way ANOVA) were used to test differential comparison between tourist demographics and tourist motivation. The findings showed that the level of push factors was greater than that of pull factors. The highest level of push factor was the need of express theirsexual identity. While the highest average level of pull factor was the beautiful beach followed by diversity of natural tourist attractions. The data also showed that age differences had significant different level of tourist motivation. While the country of origin has no significant different level of tourist motivation. The discussion was the push factor of Chinese LGBT were specific motivation. On the other hands, pull factors were similar to heterosexual tourists traveled to Bangkok.

Keywords— LGBT Tourism, Chinese Tourists, Tourism Motivation

I. INTRODUCTION

For centuries, the son preference lied deep roots in Chinese culture. In Chinese belief, man has greater physical strength and more survival opportunities in agriculture society in China. It was also a great deal to continue one's family line. Therefore, Chinese LGBT was an invisible and hidden population in the society. One-child policy in 1979 targeted on slowing the growth of the population. However, the policy enforced strong pressure on LGBT who supposedly continue the family line [1][2]. In 1997, homosexuality was legal but was considered psychiatric disorders until 2000. The number of LGBT community has increased in China. Also, the Chinese public has grown more supportive of LGBT rights. Several big companies, like Alibaba, Weibo, and Taobao, have shown their support for LGBT community [3]. Shanghai Pride, the biggest LGBT event was held annually since 2009 (the event was suspended in 2020 due to Covid-19 pandemic). It seemed that LGBT community right has been improved. However, in terms of social acceptance, LGBT were still intolerable and encountered discrimination.

According to a UNDP (the United Nations Development Programme) survey in 2016, only 5% of over 28,000 respondents had come out to people outside of their families, and less than 15% had revealed to their families [3][4]. Similarly, a national

survey of LGBTQ students from 29 Chinese provinces/ municipalities revealed that the majority remained secluded with their families. Furthermore, they were at great risk for psychological agony [5]. Even though, some Chinese LGBT have successfully come out to their close families. They could not avoid the discrimination and the social judgement. The strong social pressure prevented them to express their sexual identity freely [6]. It could possibly cause them tension and imbalance. Therefore, several LGBT Chinese were driven to escape from intense environment outside the country.

In tourism study, gay tourism or LGBT tourism has gained the interest from scholars in the late 1980s, 1990s, and 2000s. The LGBT tourism market was not current but still in the gaze of holiday makers and DMOs. Due to LGBT culture has grown rapidly worldwide which opened the opportunities for both tourists and tour operators. The literature highlighted LGBT travellers as a commodity with a high disposable income [7]. The literature studied the gay/ LGBT tourist motivation found that they had specific motivations and expectations on destination choices.

Previous studies found that they were pushed to escape from intense social criticism including abuse, discrimination, and criminalisation. They desired to liberally show their sexual identity [8], [9][10]. At the same time, they were likely to travel to LGBT friendly destination where welcome them with more than tolerant attitude [11]. On the contrary, they

tended to avoid visiting the destination where either LGBT is illegal or unacceptable [12]. More recent, LGBT culture and community has gained global support. However, there were some LGBT undesirable countries. In 2011, it was reported that they were 76 countries where homosexuality was illegal, five of which making it punishable by death. The level of acceptance of LGBT among the local also could have an impact on LGBT's choice of destination [13]. The study about local attitude towards gay tourist at Mexico beach found that local felt disturbed by gay lovers' behaviour in public. It confirmed the conflict between local and gay tourists [14]. Therefore, it can be said that LGBT friendliness has played the critical part in LGBT tourist motivation. Pull factors tourist motivation including toleration, gay space such as gay bars, gay clubs, party, and gay events could attract LGBT to visit. However, the more recent research argued that their pull factor motivation did not differ from mainstream tourists [10]. Moreover, another study confirmed that the beauty of the city of Budapest and its history, architecture and scenery were main factors [15]. The study of role of gay spaces in Gran Canaria found that LGBT tourists were not necessarily seeking for gay space or gay activities. They were likely to seek freedom in mixed heterosexual and LGBT environments [16]. Likewise, the study focusing on lesbian tourists argued that lesbian tourists were a very heterogenous group in terms of holiday choices and activities like a female tourist [17].

Thailand was one of the well-known choices of destination for Chinese tourists both mainstream and LGBT. It has been globally recognized as gay destination for decades [18]. It was well-known for its beautiful destinations and various tourist attractions. The local Thai was recognized for their friendliness and high tolerance attitude. The city of Bangkok has offered gay space and activities for LGBT tourist. It also provides club, sauna, and hotel with LGBT friendliness staff. In terms of LGBT rights, Thailand will be the first country in Southeast Asia or the second in Asia after Taiwan to legalise same sex unions [19]. It seemed that Bangkok, Thailand had a lot to offer to Chinese LGBT tourists.

It has come to the research question what motivated Chinese LGBT tourists to travel to Bangkok. Tourist with demographical would differ the level of motivations.

II. RESEARCH OBJECTIVES

The research objective is to study Chinese LGBT tourist motivation traveling to Bangkok.

III. RESEARCH METHODS

A. Research Design

The research employed a quantitative research approach. Questionnaire survey was used to investigate the motivation of Chinese LGBT tourists who travel in Thailand. The samples were 400 Chinese LGBT tourists. The questionnaire was distributed to 400 Chinese LGBT tourist at the JJ Market, one of the main tourist attractions in Bangkok. The sampling size was calculated according to the Cochran formula with a 95% confidence level and an uncertainty of ± 0.05 . The questionnaire had 3 parts as followed. Part one, the demographic information, was check list questions asking about age, education level, occupation, income, origin, and gender expression. Part two included Likert type scales (1-5) of tourist motivations both push and pull factors to visit Bangkok. Part three was open-ended question asking the recommendation.

B. Research Process

The research has followed four steps of research process as followed 1) exploring the literature review; 2) developing data collection tool; 3) collecting data; 4) analyzing data; and 5) presenting the results (see figure 1).

Step 1 Exploring the literature about tourist motivation and LGBT tourism	<ul style="list-style-type: none"> • Research gap • Research question 	<ul style="list-style-type: none"> • Research aim • Research objectives
Step 2 Developing data collection tool	<ul style="list-style-type: none"> • Design questions • Validation and reliability testing 	Questionnaire Consisted of 3 parts: demographic information; tourist motivations; tourist recommendation
Step 3 Collecting data	<ul style="list-style-type: none"> • Distributed questionnaire to 400 samples 	Research data
Step 4 Analyzing data	<ul style="list-style-type: none"> • Analyzed by mean and standard deviation • Tested hypotheses by F-test and correlation 	Research findings
Step 5 Presenting results	<ul style="list-style-type: none"> • Research findings • Discussions and conclusion 	Reporting research findings and discussion

Figure 1: Research Process

IV. RESULTS

The data showed that most of the respondents were from China at 54.40% and 45.50% from Taiwan. Most of them were 21-30 year of age (36.75%), followed by 31-40 year of age (32.25%). It was only 2.50% of over 61 years old (see Table 1).

Table 1: Age of the respondents

Age	Frequency	Percentage
21 - 30	147	36.75
31 - 40	129	32.25
41 - 50	60	15.00
51 - 60	54	13.50
Over 61	10	2.50
Total	400	100.00

The level of motivation both push and pull factor were high (see Table 2).

Table 2: Tourist motivation

Tourist motivation	Motivation level		
	\bar{x}	S.D.	level
Push factor	3.71	0.40	High
Pull factor	3.56	0.30	High
Overall	3.64	0.26	High

The Table 2 showed that the push factor motivation was greater than pull factor. The push factor was at a high level ($\bar{x} = 3.71$, S.D. = 0.40) while pull factor at a high level ($\bar{x} = 3.56$, S.D. = 0.30) overall factor was at a high level ($\bar{x} = 3.64$, S.D. = 0.26). The respondents were asked their opinions about 20 push factors. The data showed that most of the items were at a high level, while three items were at a moderate level (see Table 3). The table 3 showed that the highest level of push factor motivation was 'Need to express sexual identify' at a high level ($\bar{x} = 4.40$, S.D. = 0.74) followed by 'Need to spend time with lover' at a high level ($\bar{x} = 4.35$, S.D. = 0.71) and 'Need to self-development' at a high level ($\bar{x} = 4.28$, S.D. = 0.79). On the other hand, the lowest level of push factor motivation was 'Need to travel outside the country' ($\bar{x} = 3.03$, S.D. = 0.71), 'Need to meet new international friend' ($\bar{x} = 3.08$, S.D. = 0.70), and 'Need to relax' ($\bar{x} = 3.12$, S.D. = 0.76) respectively.

Table 3: Push factors of LGBT tourists

Push factors	Motivation level		
	\bar{x}	S.D.	level
Need to travel outside the country	3.03	.71	Moderate
Need to learn new culture	3.62	.66	High
Need to meet new international friend	3.08	.70	Moderate
Need to relax	3.12	.76	Moderate
Need to express sexual identify	4.40	.74	High
Need to experience luxury holiday	3.62	.73	High
Need to calm mind	3.57	.80	High
Need to escape from environment	3.56	.83	High
Need to maintain relationship with lover	3.60	.75	High
Need to boost self-esteem	3.65	.82	High
Need to find new experience	3.74	.92	High
Need to exchange experience with other LGBT tourists	3.82	.83	High
Need to self-challenge	3.78	.83	High
Need acceptance	3.81	.83	High
Need to ease social pressure	3.69	.86	High
Need self-development	4.28	.79	High
Need to spend time with lover	4.35	.71	High
Need to learn spiritual and beliefs	3.75	.84	High
Need to give back to society	3.77	1.01	High
Need to gain new inspiration	3.98	.89	High
Overall	3.71	.40	High

The respondents were asked to rate the level of motivation on pull factors (see Table 4).

Table 4: Pull factors of LGBT tourists

Pull factors	Motivation level		
	\bar{x}	S.D.	level
Beautiful historical and archaeological attraction	3.18	.65	Moderate
Hi-class nightclub attraction	3.88	.83	High
Beautiful beach	4.55	.76	Very high
Diversity of natural attraction	4.48	.81	High
Convenient public transport	3.23	.74	Moderate
Well-known festivals	2.62	.88	Moderate
Convenient custom process	3.20	.71	Moderate
Access to medical treatment	2.22	.79	Moderate
Good communication system both domestic and international	3.18	.72	Moderate
Diversity of LGBT/ gay space	2.87	.86	Moderate
LGBT friendliness of local	3.13	.55	Moderate
Well-known attractions in Bangkok	4.06	1.01	High
Worth of money on traveling	3.94	.96	High
Well Chinese communication of staff	3.80	.69	High
Safety during traveling	4.00	1.00	High
Diversity of attraction for LGBT	4.30	.96	High
Variety of Thai food and beverage	4.00	.96	High
Overall	3.56	.30	High

The Table 4 showed that the overall pull factor motivation was at a high level ($\bar{x} = 3.56$, S.D. = 0.30). The highest level was 'Beautiful beach' at a very high level ($\bar{x} = 4.55$, S.D. = 0.76), followed by 'Diversity of natural attraction' ($\bar{x} = 4.48$, S.D. = 0.81). On the other hand, the lowest level were 'Access to medical treatment' ($\bar{x} = 2.22$, S.D. = 0.79), 'Well-known festivals' ($\bar{x} = 2.62$, S.D. = 0.88), and 'Diversity of LGBT/ gay space' ($\bar{x} = 2.87$, S.D. = 0.86) respectively.

The factor analysis of push and pull factors was done with varimax rotation to group the variables by factor loading. The push factors analysis results were shown in the Table 7.

Table 7: Factor analysis of push factors with varimax rotation

Push factor	Factor loading			
	1	2	3	4
Need to self-challenge	0.90			
Need to exchange experience with other LGBT tourists	0.89			
Need acceptance	0.87			
Need to find new experience	0.88			
Need to ease social pressure	0.82			
Need to calm mind		0.84		
Need to escape from environment		0.81		
Need to experience luxury holiday		0.81		
Need to maintain relationship with lover		0.79		
Need to boost self-esteem		0.71		
Need to learn spiritual and beliefs			0.88	
Need to gain new inspiration			0.78	
Need to give back to society			0.77	
Need to spend time with lover			0.75	
Need self-development			0.68	
Need to travel outside the country				0.73
Need to meet new international friend				-0.54
Need to relax				0.42
Need to learn new culture				0.34
Eigenvalue	7.868	3.148	1.415	1.254
Variance explained (%)	37.467	15.085	6.740	5.973
Cumulative Variance explained (%)	37.467	52.552	59.292	65.265

The first factor had eigenvalue 7.868 with percentage variance 37.467% which meant factor 1 had contributed around 37.467% in pushing LGBT tourists to visit Bangkok, also with the highest factor loadings made this factor as the most important of others. Factors were included: 'Need to self-challenge', 'Need to exchange experience with other LGBT tourists', 'Need acceptance', 'Need to find new experience', and 'Need to ease social pressure'. These five factors reflected LGBT tourists "Being myself and at ease".

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The second factor had eigenvalue 3.168 with percentage variance 15.085% which meant factor 2 has contributed around 15.085% in pushing LGBT tourists to visit Bangkok, it made this factor as the second most important factor in pushing LGBT tourists to visit Bangkok. Factors were included 'Need to calm mind', 'Need to escape from environment', 'Need to experience luxury holiday', 'Need to maintain relationship with lover', 'Need to boost self-esteem'. These five factors reflected LGBT tourists "Being calm and maintain relationship".

The third factor had eigenvalue 1.415 with percentage variance 6.740% which meant factor 2 has contributed around 6.740% in pushing LGBT tourists to visit Bangkok, it made this factor as the third most important factor in pushing LGBT tourists to visit Bangkok. Factors are included: 'Need to learn spiritual and beliefs', 'Need to gain new inspiration', 'Need to give back to society', 'Need to spend time with lover', 'Need self-development'. These five factors reflect LGBT tourists "Learning spiritual and giving back".

The fourth factor has eigenvalue 1.254 with percentage variance 5.973% which meant factor 2 has contributed around 5.973% in pushing LGBT tourists to visit Bangkok, it made this factor as the fourth most important factor in pushing LGBT tourists to visit Bangkok. Factors are included: 'Need to travel outside the country', 'Need to meet new international friend', 'Need to relax', 'Need to learn new culture'. These four factors reflect LGBT tourists "Exploring and meeting new friend".

The pull factors were also grouped into 4 factors. The results of factor analysis were shown in the Table 8.

Table 8: Factor analysis of pull factors with varimax rotation

Push factor	Factor loading			
	1	2	3	4
Safety during traveling	.813			
Well-known attractions in Bangkok	.910			
Worth of money on traveling	.902			
Well Chinese communication of staff	.870			
Diversity of attraction for LGBT	.790			
LGBT friendliness of local	.625			
Variety of Thai food and beverage	.624			
Diversity of natural attraction	.592			
Convenient custom process	.491			
Well-known festivals	.384			
Good communication system both domestic and international		.501		
Diversity of LGBT/ gay space		.497		
Beautiful beach		.425		
Convenient public transport		.405		
Access to medical treatment			.691	
Beautiful historical and archaeological attraction			.645	
Hi-class nightclub attraction			.424	
Eigenvalue	5.021	1.391	1.239	1.210
Variance explained (%)	27.895	7.730	6.882	6.734
Cumulative Variance explained (%)	27.895	35.625	42.507	49.230

The first factor had the highest factor loadings eigenvalue 5.021 with percentage variance 27.895% which meant factor 1 had contributed around 27.895% in attracting LGBT tourists to visit Bangkok. It made this factor the most important of others. Factors were included: 'Safety during traveling', 'Well-known attractions in Bangkok', 'Worth of

money on traveling', 'Well Chinese communication of staff', 'Diversity of attraction for LGBT' and 'LGBT friendliness of local'. These six factors reflected LGBT tourists "Safety, worthy and friendly".

The second factor had the eigenvalue 1.391 with percentage variance 7.730% which meant factor 2 had contributed around 35.625% in attracting LGBT tourists to visit Bangkok. It made this factor the second most important of others. Factors were included: 'Variety of Thai food and beverage', 'Diversity of natural attraction', 'Convenient custom process', and 'Well-known festivals'. These four factors reflected LGBT tourists "Variety and diversity".

The third factor had the eigenvalue 1.239 with percentage variance 6.882% which meant factor 3 had contributed around 42.507% in attracting LGBT tourists to visit Bangkok. Factors were included: 'Good communication system both domestic and international', 'Diversity of LGBT/ gay space', 'Beautiful beach', and 'Convenient public transport'. These four factors reflected LGBT tourists "Infrastructure, beach, and gay space".

The fourth factor had the eigenvalue 1.210 with percentage variance 6.724% which meant factor 4 had contributed around 49.230% in attracting LGBT tourists to visit Bangkok. Factors were included: 'Access to medical treatment', 'Beautiful historical and archaeological attraction', and 'Hi-class nightclub attraction'. These three factors reflected LGBT tourists "Medical treatment, historical and nightclub attractions".

Then T-test and F-test (One Way ANOVA) were used to test differential comparison between tourist demographics and tourist push and pull motivations. The results showed that age differences had no effect on push factors (see Table 9).

Table 9: Differential comparison of age to push factor

Factor	Age	Differential comparison					
		t	F	S.D.	df	Sig.	
Being myself and at ease	21-30	147	3.81	.771			
	31-40	129	3.81	.750			
	41-50	60	3.55	.913	1.665	.392	.157
	51-60	54	3.74	.737			
	Over 61	10	4.06	.505			
Being calm and maintain relationship	21-30	147	3.65	.675			
	31-40	129	3.64	.722			
	41-50	60	3.50	.686	1.413	.305	.229
	51-60	54	3.45	.728			
	Over 61	10	3.80	.812			
Learning spiritual and giving back	21-30	147	4.01	.658			
	31-40	129	4.12	.716			
	41-50	60	3.97	.676	1.547	.392	.188
	51-60	54	3.94	.582			
	Over 61	10	3.74	.674			
Exploring and meeting new friend	21-30	147	3.22	.566			
	31-40	129	3.24	.538			
	41-50	60	3.17	.579	1.245	.392	.275
	51-60	54	3.19	.502			
	Over 61	10	3.03	.678			
Overall push factor	21-30	147	3.72	.412			
	31-40	129	3.77	.383			
	41-50	60	3.61	.428	2.983	.392	.882
	51-60	54	3.63	.353			
	Over 61	10	3.75	.518			

The age differences had no effect on overall pull factor. However, it showed the significant effect on the factor

“Medical treatment, historical and nightclub attractions” at $\leq .05$ (see Table 10). The mean difference of “Medical treatment, historical and nightclub attractions” was tested by Fisher’s Least Significant Difference (LSD).

Table 10: Differential comparison of age to pull factor

Factor	Age	Differential comparison					
		n	\bar{Y}	S.D.	F	df	Sig.
Safety, worthy and friendly	21-30	147	3.85	.742			
	31-40	129	3.79	.790			
	41-50	60	3.98	.724	1.226	395	.299
	51-60	54	4.01	.573			
	Over 61	10	3.82	.465			
Variety and diversity	21-30	147	3.54	.418			
	31-40	129	3.63	.485			
	41-50	60	3.48	.460	1.617	395	.169
	51-60	54	3.64	.473			
	Over 61	10	3.55	.563			
Infrastructure, beach, and gay space	21-30	147	3.45	.403			
	31-40	129	3.46	.419			
	41-50	60	3.52	.325	1.043	395	.385
	51-60	54	3.44	.417			
	Over 61	10	3.25	.425			
Medical treatment, historical and nightclub attractions	21-30	147	3.05	.423			
	31-40	129	3.05	.464			
	41-50	60	3.04	.495	5.150	395	.000*
	51-60	54	3.31	.482			
	Over 61	10	3.40	.466			
Overall pull factor	21-30	147	3.54	.303			
	31-40	129	3.54	.304			
	41-50	60	3.58	.318	2.196	395	.069
	51-60	54	3.67	.217			
	Over 61	10	3.55	.390			

*Significant $\leq .05$

The results in the Table 11 showed that the age group of 51-60 had higher mean of “Medical treatment, historical and nightclub” comparing to the age group of 21-30, 31-40, and 41-50 (see Table 11).

Table 11: Mean difference of “Medical treatment, historical and nightclub attractions” by age using Fisher’s Least Significant Difference (LSD)

Age	Mean	Mean Difference (I-J) between 2 groups				
		21-30	31-40	41-50	51-60	Over 61
21-30	3.05	-	.001	.011	-.265*	-.350*
31-40	3.05		-	.010	-.266*	-.351*
41-50	3.04			-	-.276*	-.361*
51-60	3.31				-	-.085
Over 61	3.40					-

*Significant $\leq .05$

The differentiate comparison of push factor by country of origin was tested by t-test. The results showed that country of origin had no effect on push factors (see Table 12).

Table 12: Differentiate comparison of push factor by country of origin (t-test)

Factor	Country of origin	Differentiate comparison					
		n	\bar{Y}	S.D.	t	df	Sig.
Being myself and at ease	China	218	3.76	.830			
	Taiwan	182	3.77	.747	-.102	398	.919
Being calm and maintain relationship	China	218	3.00	.803			
	Taiwan	182	3.00	.717	.073	398	.941
Being calm and maintain relationship	China	213	4.03	.888			
	Taiwan	179	4.02	.852			
Exploring and meeting new friend	China	218	3.21	.385			
	Taiwan	182	3.22	.310	-.342	398	.732
Overall	China	218	3.71	.406			
	Taiwan	182	3.71	.401			

The differentiate comparison of pull factor by country of origin was tested by t-test. The results showed that country of origin had no effect on pull factors (see Table 13).

Table 13: Differentiate comparison of pull factor by country of origin (t-test)

Factor	Country of origin	Differentiate comparison					
		n	\bar{Y}	S.D.	t	df	Sig.
Safety, worthy and friendly	China	213	3.91	.696			
	Taiwan	179	3.83	.789	1.126	398	.261
Variety and diversity	China	218	3.56	.478			
	Taiwan	182	3.60	.454	-1.177	398	.240
Infrastructure, beach, and gay space	China	218	3.43	.403			
	Taiwan	182	3.46	.396	-1.281	398	.201
Medical treatment, historical and nightclub attractions	China	218	3.10	.448			
	Taiwan	182	3.09	.488	.251	398	.802
Overall	China	218	3.56	.384			
	Taiwan	182	3.56	.300	-.142	398	.887

V. DISCUSSIONS

The results showed that the push factors of Chinese LGBT were greater than pull factors. The highest level among the push factors was the need of express their sexual identity. The need to spend time with lover was the second highest level. The two push factors might relate to the strong Chinese culture against LGBT community. Considering together with factor analysis result showed that factor “Being myself and at ease” consisted of ‘Need to self-challenge’, ‘Need to exchange experience with other LGBT tourists’, ‘Need to acceptance’, ‘Need to find new experience’, and ‘Need to ease social pressure’ had the highest eigenvalue. It confirmed that these push factors were the most important factors driven LGBT to travel. Moreover, the differential comparison between country of origin and push factors showed no differences. Although the LGBT rights in Taiwan was far more ahead that in China. It did not reflect on the results. Consequently, it can be concluded that China and Taiwan shared the same root of culture. It may influence attitude towards LGBT community. This aspect may change overtime as the LGBT culture and community gain wider recognition and acceptance.

The results revealed that ‘Diversity of attraction for LGBT’ was a high level, but not greater than ‘Beautiful beach’ and ‘Diversity of natural attraction’. It argued that the gay/ LGBT space was not key reason on destination choice. Pull factors for heterosexual tourist like ‘Well-known attraction in Bangkok’, ‘Safety during travelling’ and ‘Variety of Thai food and beverage’ also draw attention from LGBT tourist. The result of factor analysis showed that “Safety, worthy and friendly” factor had the highest eigenvalue also included ‘Worth of money on traveling’ and ‘Well Chinese communication of staff’. It can be said that LGBT tourist was attracted by similar pull factor as mainstream tourists.

The discussion of this research can be concluded that Chinese LGBT tourist had specific motivations of push factor.

However, the pull factor motivated them to visit Bangkok were not great different from other mainstream tourists.

VI. RECOMMENDATIONS

A. Recommendations for Practices

1. Destination Marketing Organization (DMO) can use the results of this research to plan on LGBT tourism in Thailand. It can be used for LGBT Chinese tourist market or similar background of demographic.
2. Age difference of tourists were effect by factors at different level. DMO can use the results to plan on their destination to attract LGBT tourist.

B. Recommendations for Further Research

1. The samples in this study were more gay men or transgender women who were more noticeable. For the next research, the stratified sampling should be applied to compare the data.
2. Cross cultural study in LGBT motivation can be done for wider and deeper discussion.
3. The research has employed quantitative research approach. The next research should consider qualitative research method providing deeper understanding among LGBT.

VII. CONCLUSION

In conclusion, the findings showed that push factors of Chinese LGBT were greater than pull factors. The research has achieved the research objective. The results showed that the push factors were greater than pull factors. Although, the findings and discussions showed that demographic of LGBT tourist had no effect on push factors. On the other hand, it influenced some factors of pull factors. Interestingly, the culture and difference of generation of Chinese LGBT did not reflect on the result.

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Causal Analysis Models Influence the Business Environment of the Agricultural Industry in Thailand

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Abstract—The crisis of the covid-19 virus epidemic severely affects the economy many industrial sectors had to close. The situation of the products agricultural industry decreased by 3.9 percent. This research aims (1) to research factor analysis of the business environment affecting export planning, and (2) to analyze the causal effect between the components business environment that are related to the export planning. The target population for this study includes entrepreneurs in the agricultural industry in Thailand using a Purposive random sampling of 145 cases. The instrument used for data collection was a questionnaire developed from the literature review. Statistical analyzes used confirmatory factor analysis and causal analysis with the structural equation modelling techniques.

Confirmatory factor analysis results found that the domestic market environment includes the domestic market condition, process barrier to export, and government export assistance. Moreover, the foreign market environment consists of foreign markets condition and foreign government regulations. These results are consistent with the exploratory factor analysis.

The results of the assessment of the causal analysis fit index revealed that the conceptual framework was consistent with the empirical data. The fit index showed that $\chi^2 = 788.88$, $df = 431$, $\chi^2/df = 2.00$, $GFI = 0.95$, $NFI = 0.89$, and $RMSEA = 0.056$

Recommendation and new finding: pay attention to hygiene, Cleanliness, and safety in production to build consumer confidence, including packaging that must be free from germs. Moreover, employees and operators must be inspected for an adverse germ-free condition or obtaining a safe vaccination. New findings revealed that the situation of foreign markets, such as political, social, and legal status in foreign countries, does not affect export planning. Due to the outbreak of the Covid-19 epidemic, this makes it impossible to perform different or reduced export operations. As a result, the situation in the international market does not affect export planning.

Keywords— Business environment, agricultural industry, causal analysis

I. INTRODUCTION

The crisis of the covid-19 virus epidemic severely affects the economy. Many industrial sectors had to close their business. Because the business is in bankruptcy and the lack of financial liquidity increases the number of unemployed people. As well as the situation of products in the agricultural industry. The study of [2] found that the products in this category decreased by 3.9 percent due to drought. Such delaying orders resulted in reduced products in the fishery sector decreased by 4.3%, or products in the fruits and vegetable group decreased by 10.3%.

In terms of consumer demand for products in this group [2][7], expected that the production index of the food industry Overall in February 2021, a slight contraction from the same period last year because there are still many measures to prevent the spread of the Covid-19 virus, such as setting the closing time of restaurants no later than 9.00 pm., banning alcohol in restaurants and entertainment venues, et cetera.

The main reason Thai food products can stand up to any crisis is that Thai food is famous. Good quality and taste It is also trusted in safety. Certified by international agencies, as a result, has advantages in exporting over many countries. More people stay at home, especially in the Covid-19 crisis, where consumers worldwide have a new normal behavior. Customers cook more, but they just ordered from a partner country. Accelerate the import of food products to support short-term quarantine. [1]

Thai food export situation in 2020, according to the report of [6], was found that Thai food exports valued at 980,703 million baht, shrank by 4.1 percent, resulting in a decrease in the share of the world market to 2.32 percent from a hundred. 2.49 each, making Thailand the 13th largest food exporter in the world from 11th place last year. Bangkok Bank (2021) study found that Thai deliveries in the food industry valued at 1.08-1.10 trillion baht, an increase of 10.2-12.2% compared to a year ago that contracted from the impact of COVID-19. The prices of some agricultural commodities tend to increase especially renewable energy crops such as soybean, oil palm, corn, sugarcane, cassava, et cetera.

As demand for renewable energy and the appreciation of various Asian currencies increase, more agricultural products will be exported, mainly to China. These will have a positive effect in terms of incentives to increase the productivity of Thai farmers. Recently, the production of raw materials in the agricultural sector of Thailand gradually recovered in the second half, causing prices and farmer incomes to increase at an accelerated rate. These have a positive effect on raw materials and support domestic consumption.

For the exporting company is generally exporting will increase sales for the company. Moreover, the results have been found that exporting gives the company an advantage over its competitors. Help maintain financial status, increase investment and help to upgrade the technology in production, expand the market base, and developing new markets. Therefore, the high volume of exports and the high growth in export sales contribute to the long-term profitability of the enterprise and reduce the unit cost to the exporting company. In addition, the researcher hopes that this research will be able to find answers on the methods for the analysis and assessment of business environment factors of the agricultural industry effectively as well as pointing out various factors that need to be emphasized in export planning and operations, including suggestions and new findings that will benefit future export decisions.

II. RESEARCH OBJECTIVES

1. To analyze the corroborating elements of the business environment affecting export planning.
2. To analyze the causal influence between the business environment components concerning to export planning.

III. LITUREATURE REVEIWS

The domestic market situation is the driving force for an organization or company to seek new markets abroad. The researcher found that many factors vary according to the situation. Whether the competitive condition of the domestic market slowing economic growth rate or even the size of the domestic market is small. These factors affect the organization or company. That is necessary to seek new markets abroad in order for the organization to survive. As confirmed by studies of [5] and [8], if the domestic market is strong, that will also support the success of export operations. Obstacles to the export process are one of the significant problems in the planning of export decisions. These may cause delays in the complexity of the documentation process as well as causing many problems, which lead to reduced ability to export. The component weight test [10] proved the obstacles in the export process and the complexity of the export work process. It is the most critical barrier to export

(0.876). The obstacle in the export process also affects other factors. Companies with less export experience will have more barriers to export than companies with less export experience. Experienced in exporting and found that the barriers in the export process are more than in smaller companies, for example.

Compared to Thailand, the government aid index and the flexibility of doing business in Cambodia, Laos, Myanmar, and Vietnam (CLMV) countries. A total of 183 countries were ranked, Thailand was ranked 12th. At the same time, Vietnam was 93rd, Cambodia was 145th, and Laos was 167th convenience business flexibility or receiving assistance from the Thai government ranks better than all of its neighboring countries, affecting the country's ability to export to increase. [6][7]

Therefore, getting help from the government regarding information or support through policy-making tax measures or even assisting in organizing trade shows abroad and providing loan services, etc. The government assistance that entrepreneurs in the Netherlands export sector needed the most was information and news about overseas export markets, including training and organizing additional special education courses on export in educational institutions [12][13].

When studying the export market abroad, a researcher found that most industrial operators in Germany tend to export to traditional markets. That is, it will not expand its exports to new markets. Moreover, the review found no statistical significance in selecting or changing export markets abroad [4][9]

In addition, the situation of the overseas market studied in this study literature review based on the conceptual framework of [8][9] and additional studies conducted on various issues. The following essential issues create questions: exchange rate, economic situation, political situation purchasing power, international market competitors, and physical distance.

IV. RESEARCH METHODS

A. Sample Size

The population studied in this research were executives in the agricultural industry in Bangkok and its vicinity. Based on the database of the department of export promotion, that was found that the target sample size in the agri-industry group was a total of 145 companies were performed from a group of agricultural industry operators [14].

B. Research Statistics

Factor analysis is an analytical technique used to categorize a large number of variables. To be categorized also allows the

researcher to classify variables if the researcher does not know how to categorize the variables. [11]

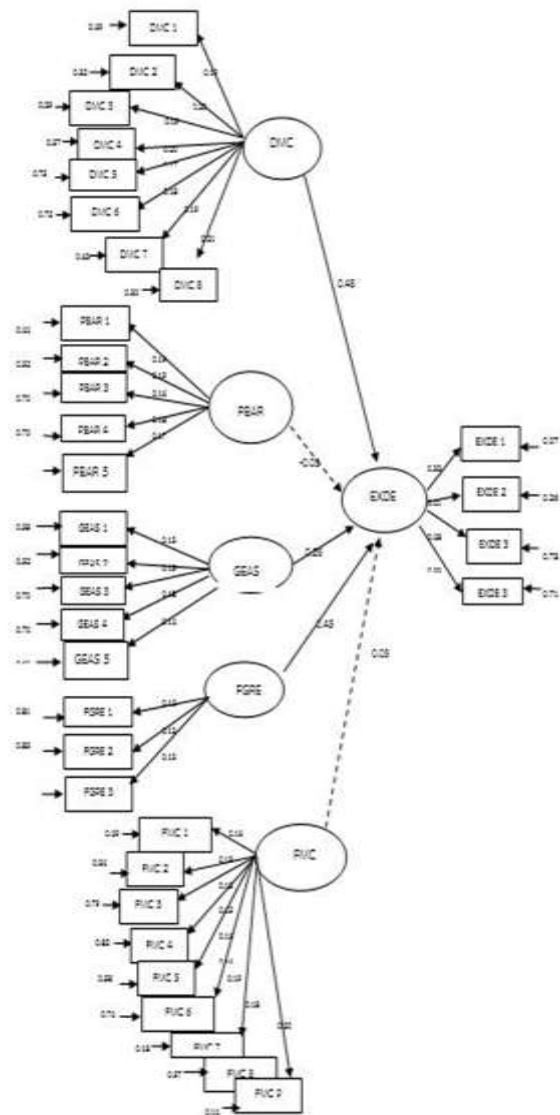
Structural equation modelling analysis to analyze the problem of lack of representation of the relationship between variables. The researchers then chose to use relationship analysis to solve the problem, helping them test the relationship between variables, whether they were related or not, and test the assumption that they were consistent.

V. RESEARCH RESULTS

The exploratory factor analysis revealed that the domestic market environment consists of 3 components. Component 1, the situation of the domestic market. The researcher measured with eight questions, component 2, and government assistance measured with five questions. The final component, barriers to export, measured five questions with eigenvalue at 6.733, 2.784, and 2.193, respectively. Regarding elements of the foreign environment, consisting of 2 components: foreign government regulations measured with three questions and the international market situation measured with nine questions with eigenvalues 6.856 and 2.338, respectively.

The corroborative confirmatory factor analysis (CFA) revealed that the domestic market environment contains the domestic market barriers to export and receiving assistance from the government. On the other hand, the international market environment consists of foreign markets' situation and foreign governments' regulations; the factor is consistent with the exploratory component analysis.

Model adjustment results from the CFA. Techniques revealed that the chi-square value was 110.17, the GFI index was 0.87, the AGFI index was 0.82, the CFI index was 0.98, the RMR was 0.34, and the RMSEA was 0.056, showing the model values as follows. Results found that the results of the assessment of the confirmatory factor analysis of the model by analyzing the confirmatory components of the export planning of the agri-industry passed the required criteria and was consistent with the primary empirical data from which the model adjusted to be consistent with the recommendations. Therefore, this model is consistent with the empirical data.



Chi-square=893.73, df.=431, p-value=0.00, RMSEA= 0.056

Figure 1: Casual analysis of business environment

The results of the analysis of the causal influence of the business environment affecting export planning showed that the influence path between the domestic market situation (DMC) to the export planning (EXDE) was statistically significant ($B = 0.25$, $t = 3.38$). On the other hand, the influence path between government assistance (GEAS) to export planning was statistically negative ($B = -0.053$, $t = -2.05$), and the influence path between obstacles in the export process (PBAR) to export planning was statistically insignificant ($B = 0.14$, $t = -0.37$), all of these are components of the domestic environment.

The elements of the foreign environment When analyzing the causal influence, the results of the analysis of the influence

path between the foreign market situation (FMC) to the planned export (EXDE) were not statistically significant ($B=0.013$, $t=-0.17$) and the influence path between the foreign government regulations (FGRE). To export planning was statistically significant ($B=0.27$, $t=2.56$).

The results of the assessment of the conformity index, the causal influence analysis revealed that the conceptual framework was consistent with the empirical data. The results showed that the chi-square statistic (χ^2) was 788.88, the degree of freedom (df.) was 431, and the relative chi-square ($\chi^2/df.$) was 2.00. The absolute fit index, comprising the Harmony Level Index (GFI) conformity factor, was 0.95. The Adjusted Harmony Index (AGFI) was 0.65, adjusting model 0.91. The relative conformity index (relative fit index), the NFI (normed fit index) was 0.89, the NNFI (non-normed fit index) was 0.89, and the conformance index in the tolerance form consisted of RMSEA (root mean square error of approximation) had the value is 0.056.

VI. SUMMARY AND DISCUSSION

Summarizing the research results found that the domestic market situation and foreign government regulations have a positive relationship. Moreover, the results of export found that the assistance from the Thai government was negative. Therefore, export planning for the international market situation and the obstacles in the export process do not affect the export planning and discussion of the results.

Therefore, when considering the domestic market situation, there is a positive relationship with export planning because if the situation in the country, such as the political situation, was volatile. Unstable will directly affect export planning. That is to say, that may cause export operators to stop exporting or unable to export. Consistent with the study results [8], the domestic market situation is the driving force for companies to seek new markets abroad. Domestic decreased annual growth rate or factors related to the size of the market in small countries all of these factors cause organizations/companies to search for new markets in order for them to survive.

In addition, foreign government regulations positively correlate with export planning as agricultural industry operators have to comply with regulations to meet export standards. This factor was becoming more critical. Consistent with the study results [10][15], understanding international trade measures and regulations promote up to 100% international trade. International trade is inevitable that every business must suffer, leading to the great need to seek information and learn about laws and regulations.

The assistance from the government in the country found that the statistics were statistically negative because the assistance from the Thai government did not meet the needs of the

agricultural industry. Consistent with the study of [3], due to budget constraints or operating funds, lack of support to solve financial problems for exports, such as funding for the purchase of modern machinery, et cetera., including knowledge export recommendations, has not been successful. Furthermore, the demand for products and competitors in the international market does not help promote exports.

Significant new findings revealed that foreign markets such as political, social, and legal status in foreign countries do not affect export planning. The outbreak of the Covid-19 epidemic makes the company impossible to perform different or reduced export operations. As a result, the situation in the international market does not affect export planning. Exports to foreign markets do not depend on the epidemic situation, however. Nevertheless, on the contrary, the consumption of food and various products cannot be stopped; therefore, they must be exported or consumed all the time.

VII. RECOMMENDATIONS

A. Suggestions for expanding government assistance

The Thai government's assistance is not as successful as can explain that there is little assistance from the Thai government. Not exactly where the exporter wants or the needs of exporters in the agricultural industry. Therefore, the government should build a network of transport. In order to reduce the barriers and costs of exports such as trains, water, and air. The researcher found that the transportation of goods in Thailand is not popular with rail transport which has a much cheaper transportation cost, but it is more popular to transport by car leading to higher costs and less security. Therefore, the government sector should encourage more rail transport by building a railway line between the factories in the industrial estate to the shipping source, port, or warehouse for further distribution. Moreover, planning to build the factory in the future, the government sector must consider building a factory in the back of the source of loading and unloading and various raw materials.

B. Recommendations on operational planning

Must plan to expand production bases to countries with the cheap labor due to increased high wages of domestic workers. There is a limited amount of labor that must be imported from abroad. Therefore, entrepreneurs should consider expanding to invest in foreign countries such as China to produce and sell products in China or expand to India because labor wages are cheaper than in Thailand. The study also has a large population—worth the investment. However, cooperation in planning negotiations must be obtained from the government sector as well. Pay attention to hygiene, cleanliness, and safety in production to build consumer confidence, including

packaging free from germs. Moreover, employees and operators must be inspected for an adverse germ-free condition or obtaining a safe vaccination.

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A Confirmatory Factor Analysis of Domestic Market Environment Affecting to Export Decision of Food Industries in Thailand

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Abstract— Throughout exports, as well as international trade, is one of the factors that are important to economic growth. It is expected that there will be a slow recovery from the continued recovery of the export sector money from government measures and progress in vaccination. This research aims (1) to analyze the confirmatory factor analysis of the domestic environment in the country towards the export of Food industries in Thailand.

Target populations used in this study include the food industry in Thailand using purposive sampling of 316 data collection. Tools used for data collection was a questionnaire developed from the literature review. Statistical analyses are tested using confirmatory factor analysis with structural equation modelling (SEM).

Statistical analysis showed that the domestic market environment in the composition of factor loading between 0.58 to 0.88. It consists of three components: the domestic market condition has the highest weight component level of product demand the factor loading is equal to 0.87. Components of the procedural barriers in the export process showed that export cost is the maximum component of factor loading is equal to 0.84. Furthermore, components of government export assistance indicated that the question in the received information from government agencies is the highest factor loading equal to 0.92.

Recommendations and new findings: develop and promote value creation in products develop product quality to have quality standards in every piece sold to the market, including creating innovations for products or creating added value for products in this industry. New findings show that the domestic market environment is crucial for export planning amid the COVID-19 pandemic. Because if planning good marketing in the country. To reduce obstacles and restrictions and the well-planned health and safety of the food industry will significantly benefit future export planning.

Keywords— Domestic Market Environment, Export Decision and Confirmatory Factor Analysis

I. INTRODUCTION

Throughout exports, as well as international trade, is one of the factors that are important to economic growth. Expert expects a slow recovery from the continued recovery of the export sector money from government measures and progress in vaccination. Meanwhile, the tourism sector continues to tend to stagnate. Together with the resulting economic scars, it will be a factor that will back the future recovery. The Thai economy in 2021 is projected to expand slowly at 2 percent, but there are still low risks that need to be watched. The third containment wave could be three months longer than previously expected as the number of infections has not improved. As long as a new round of outbreaks may occur as long as there is a low level of vaccination, and 2) the delay in vaccination. Furthermore, the vaccine's efficacy may not be high enough, especially against the new virus [7].

In the first nine months of 2020 (Jan.-Sept.), export situation food products were valued at 743,981.34 million baht, contracting -0.81%. Food products with a contraction in export value were sugar, rice, and cassava products. Significantly, due to the drought, agricultural production decreased and was insufficient for processing for export. However, the overall value of food exports in Thailand declined considerably as many food products expanded. As a result of the epidemic situation of the COVID-19 virus, trading partners have increased demand for food imports from Thailand in specific categories to maintain food security. Food products with an expanding export value include Frozen food and canned food.

[20] therefore, Thailand attaches great importance to exporting food products which are the basis of Thailand already. To take advantage of the abundance of natural resources on land and in water as a source of raw materials for production and further processing into various food products. Because even though countries around the world are facing economic and financial problems, the food demand of the

population has not decreased accordingly. The trend of food development must meet the needs of today's consumers more. The dominant Thai food export is now a fruit group that has seen continuous growth in the Asian market. Because the fruit needs freshness, the distance to be delivered in Asia is easier which if we can maintain freshness to send long distances. There are still many opportunities. In 2020, Thailand's food industry exports reduced the world market share to 13th place globally from 11th place in 2019. If we consider the export of Thailand, researchers will find that countries that have moved up, such as Indonesia, Vietnam, India, saw part of agricultural raw material shipments' growth. Therefore, with the potential to process food products, Thailand can adjust neighboring raw materials to process for export under the free trade area (FTA) agreement. [14]

However, Thai food producers are the leaders in exporting this type of product in the world market. Nevertheless, the current export still has several problems and obstacles that prevent it from being as successful as it should be and unable to expand new export markets whether it is a lack of export planning, lack of severe support and promotion from business and government agencies, or even lack of information and news about international market conditions such as product demand, number of competitors, market channels, business processes in foreign markets, including rules and regulations in foreign markets, etc. Therefore, exporters need to study theories, concepts, and various internal and external factors that affect export decisions to help plan the most effective export operations.

II. RESEARCH OBJECTIVES

To analyze the confirmatory factory analysis of the domestic environment affecting the export decision of the food industry

III. LITURATURE REVIEW

[2] to study the external market environment affecting export decisions. It is an essential factor for export decisions. Moreover, a factor must be considered on the issue of the domestic market environment. This study considers three main components: (1) the domestic market situation (DMC) is one of the factors and drivers of the organization or company to seek new markets abroad. According to the study [12] and [22] found that if the domestic market is strong, these will also support the success of export operations [13], which consists of issues such as the size of the domestic market, domestic competitors, domestic marketing experience, economic growth rate, political situation, and tax measures.

Market size [19] the study found that market size correlated with export interest. For example, studies in Finland [16] and Taiwan [9] found that markets in these countries were too

small to support corporate growth. This makes it necessary to export to foreign markets. Conversely, studies [18] and [3] have found that if the domestic market size is large, it may impede an organization's export decisions. Because the domestic market already has much demand for products.

Domestic competitor, the presence of domestic competitors, leads to learning about domestic and international competitors. The factors have directly affected the learning of the operations of those companies, which companies may use this information to help them expand their domestic market.[21] studied Austria and Germany found that having domestic competitors also helped lower prices. Support to increase efficiency in management and the efficiency of product production and found that the trend of business operations. Therefore, business competitors also become good partners in business cooperation.

Marketing experience, for example, corporate executives in the UK [8] and the Netherlands [23], including export experience with knowledge and understanding of regulations and laws on exports in the international market.

The study found that the country's economic growth rate correlates with its exports, especially in India, Japan, South Korea, Thailand, Sri Lanka, Myanmar, Pakistan, and the Philippines; it positively correlated with exports. The researcher concluded that if the economic growth rate of those countries is high, the expansion of exports will also be high. Nevertheless, if the rate of economic growth is low. Exports will also expand at a low level. [6]

The Political situation from the study of [17],[1] is clear that if the country's political situation is unstable, there was political turmoil in the country, or even a crisis of political confidence will have a negative effect on the country's ability to export. For example, the unrest in China's domestic political situation has affected the financial and, as a result of declined exports. Domestic legal and regulatory measures [17],[1] confirm that standards and quality of national legislation, including having laws that favor exports, will positively affect the ability to increase exports. These factors can also help reduce barriers, and at the same time, it can be a challenge if there are too many obstacles of complexity.

(2) Export Process Barriers (PBAR) [11] found that the most crucial obstacle in exporting goods to foreign countries is the complexity of the documentation work and regulations, such as in the United States, for example. The results of the study [4] found that companies that do not export because they face more obstacles to export than companies that export. These various obstacles to such exports, such as the government's regulations in the country knowledge and understanding of overseas markets and opportunities to sell products in that country, overseas distribution channels, et cetera, and (3)

government assistance (GEAS). Both in terms of information or support through policy-making tax measures or even organizing trade shows abroad providing loan services, et cetera. In this research, government assistance of Dutch exporters needed the most information about foreign export markets. Moreover, training and organizing additional special education courses on export in educational institutions [23].

IV. RESEARCH METHODOLOGY

A. Population and Sample Size

The population studied in this research were executives in the agricultural industry in Bangkok and its vicinity. Based on the database of the department of export promotion. It was found that the target population in the agri-industry group was a total of 1,415 companies. The sample size calculation by [10] at the 95% confidence at the 316 operated companies.

B. Statistics Analytical

Exploratory factors analysis (EFA) is an analytical technique to categorize a large number of variables. Moreover, EFA allows the researcher to classify variables if the researcher does not know how to categorize the variables. Furthermore, the researchers analyzed the variables with confirmatory factor analysis (CFA) to confirm the EFA variable techniques.

V. RESEARCH RESULTS

Research results on the level of perception of environmental factors in the domestic market found that the factors of the domestic market questions about competitors had the highest average of 7.33. For the barriers to exports, the highest average of questions on export expenditure was 6.66, and the government assistance factor was the highest. The statistical analysis found that information questions from the government sector had the highest average of 7.49.

The results showed that the confirmatory model of the domestic market environment components met the required criteria and was consistent with the empirical data. In summary, the model fit index revealed that the Chi-squared value was 166.72, the GFI index was 0.87, the AGFI index was 0.82, the CFI index was 0.98, the RMR was 0.34, and the RMSEA was 0.055. In conclusion, the domestic market environment model consistent with the empirical data.

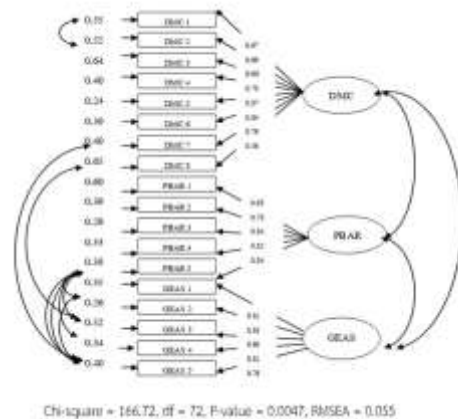


Figure 1: Confirmatory Factor Analysis of the Domestic Market Environment

The confirmatory factor analysis showed three components: the domestic market situation consists of questions at DMC1-DMC8. The second is the domestic economic situation. The elements in the export process are async, including the question at PBAR1-PBAR5 found that the export cost question has a maximum factor loading of 0.84, while the regulatory question for export has a minimal factor loading of 0.64. The last component, the government assistance, includes questions at GEAS1-GEAS5. The analysis results showed that receiving information from government agencies has a maximum factor loading of 0.92, while the export training question has a minimal factor loading of 0.73.

VI. SUMMARY AND DISCUSSION

From the established objectives to analyze the confirmation elements of the domestic environment affecting the export decision of the food industry, results found that the situation of the domestic market with the highest factor loading, the demand level was 0.87, consistent with the study [11] that found that the level of domestic demand or the size of the domestic market affects exports. The reason is a high demand for products sizeable domestic market size, the companies not exporting. On the other hand, low demand for the product in the small market required to export to foreign markets. The constituents of obstacles in the export process found that the question export expenditure had the highest factor loading at 0.84, consistent with the level of awareness analysis of domestic market environment factors. In addition, [23] found that the more rules there are, the more; as a result, the cost of export operations increases accordingly.

The government's support for the government has found that receiving information from government agencies has a maximum factor loading at 0.92, consistent with an analysis of the level of awareness about the environmental factors of

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the domestic market. According to [23], the study reveals that in the Netherlands, exports were successful because the government supported the data very well and provided new knowledge to the industry.

VII. RECOMMENDECTIONS

Develop and promote value creation in products develop product quality to have quality standards in every piece sold to the market. Moreover, creating products or creating added value for products in this industry, such as developing exciting packaging and having a story product development to suit consumers in the elderly easy to eat, does not cause problems to the body. On the other hand, developing products to suit the patient, such as unsweetened or low sugar, does not cause patients' problems. Develop new export models through online, social media, and other digital channels throughout, including establishing safety standards to suit the covid-19 pandemic, such as health check-ups or vaccinations of employees and entrepreneurs to build consumer confidence. New findings show that the domestic market environment is essential for export planning amid the COVID-19 pandemic. Because if planning good marketing in the country. In order to reduce obstacles and restrictions and the well-planned health and safety of the food industry will significantly benefit future export planning. These will create confidence in food quality and safety measures and epidemic prevention.

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Conservation Process on Puen Ancestors Worship Festival for Tourism Promotion in Nakhon Nayok Province

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Abstract— The objectives of this research were 1) to study the level of conservation needs of Puen ancestors worship festival 2) to study the process of conservation of Puen ancestors worship festival towards tourism promotion in Nakhon Nayok Province . This research particularly studied in Sai Moon subdistrict, Ongkharak district, Nakhon Nayok province. This quantitative research using questionnaires to collect data of 100 samples who live in Sai Moon subdistrict, Ongkharak district, Nakhon Nayok province. Data was analyzed by using the standard deviation, correlation and multiple regression by the Enter method. The results of the research showed that conservation needs on Puen ancestors worship festival, overall, were high level and in considering each aspects, it was found that the organizing activities, public relation and participation were high level. Wisdom transfer and cultural collecting and conservation process were moderate level. Meanwhile, for tourism promotion activities, it was found that the demand of providing facilities to serve tourists and organizing activities focused on participated of tourists were high level. The hypothesis testing found that public relations had a lower coefficient of tourism promotion activities of .202 and transfer of wisdom had a regressive coefficient of tourism promotion activities of 0.690, a statistically significant at the .05

Keywords— Conservation process, Puen, Ancestors worship festival, Tourism

I. INTRODUCTION

Nowadays, most people are increasingly aware of the importance of local art and culture. The Tourism Authority of Thailand realizes the importance of conserving cultural heritage by bringing culture and festival as a selling point in order to attract foreign tourists to visit local festivals. Cultural tourism and cultural heritage management must be considered at the same time. Conserving cultural heritage is beneficial in terms of knowledge and of giving value to society. While tourism development will lead to economic growth and community income. In the 2nd National Tourism Development Plan (2017-2021), it has identified the building of access to arts and culture knowledge and the development of tourist attractions quality along with tourism products and services to meet international standards, creating a balance and sustainability and readiness to handle tourists to drive appreciation in the arts and culture of the cultural attractions. This is in line with the strategic plan of the Fine Arts Department that values the conservation and dissemination of good arts and culture of the country in order to conserve traditions, cultural heritage and enhance its value [1]. In 2020, according to a preliminary survey of the Economic, Tourism

and Sports Division, the Ministry of Tourism and Sports, it found that the number of foreign tourists visiting Thailand is 6.7 million, comprising 1.65 million visitors from Asia, 2.07 million of Europe, 310,000 of the United States and elsewhere [3]. Cultural tourism is a relatively high market value. The size of cultural tourism is the largest compared to other forms of tourism. The global cultural tourism market is estimated at approximately US \$9 billion and has a relatively high growth rate. It is forecast that cultural tourism will grow up to 15% per year over the next 10 years. It can be said that cultural tourism is a highly attractive tourism due to its large global market and high growth rate. However, when considering Thailand's tourism market, it was found that Thailand is competitively competition in the region but may lack competitiveness in the world market. Thailand is ranked 18th in Asia as World's Cultural Heritage Site, after China, India, Japan, South Korea and Vietnam [2].

In 2020, most of the tourists visiting Nakhon Nayok are Thai tourists, accounting for 1.70 million people and among them there are approximately 5,245 foreign tourists [3]. Nakhon Nayok province is a tourist destination that has the value of arts and culture that ancestors have created and passed on as a heritage for a long time. Puen ancestors worship festival is a merit making festival which holds on the 15th day of the

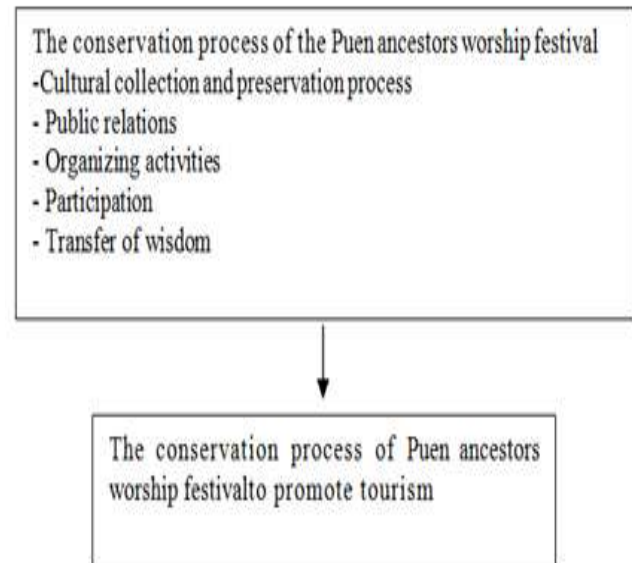
waxing moon on the 10th month of every year around the end of September to October. This merit ceremony is a merit making and worship to the ancestors, expressing gratitude and prosperity. When Puen ancestors worship festival approaches, the villagers will gather to stir together Krayasart*or khao thip and other dessert, then they distribute them to the neighbors to make merit. On Puen ancestors worship festival, the main activities consist of alms giving and listening to sermons. There are also activities that local people have been cooperating with, such as the long boat race, which is one of the activities that has attracted the tourists to participate on Puen ancestors worship festival. Puen ancestors worship festival in Sai Moon subdistrict, Ongkharak district, Nakhon Nayok province, villagers continue to practice worship activities as they have long been held up from past to present and all the villagers have continued to participate in Puen ancestors worship festival. Some efforts to maintain and carry out activities in the festival are still exist such as the rice stirring tradition Krayasart and other dessert with local people in order to make merit in the morning, activities that were inherited. At present, Puen ancestors worship festival may have changed with the times, especially with the future generations with many factors, for example, they have to go to work or study, so they do not attach much importance to or acknowledge the history of the ancestors worship and the lack of public relations, which makes this festival less prominent and unknown to tourists. As a result, Puen ancestors worship festival is known only in the community, but it does not attract many tourists to join the ritual. Therefore, the traditions, culture and Thai play in the local community are worthy conservation and sustainability to promote cultural tourism and make future generations realize the history of the tradition. If the future generations do not carry on these things, this festival may eventually disappear [9].

From the afore mentioned reasons, it can be seen that cultural tourism and cultural heritage conservation are considered at the same time. Cultural heritage conservation is beneficial in terms of knowledge and social value. While the main point of tourism can lead to economic growth and community income, the researcher is, therefore, interested in studying the process of conserving of Puen ancestors worship festival in Nakhon Nayok province to realize the value and importance of this tradition and to serve as a guideline for the succession of culture, traditions and promoting cultural tourism activities of Nakhon Nayok Province.

II. RESEARCH OBJECTIVES

The objectives of this research article were 1) to study the level of conservation needs of Puen ancestors worship festival and 2) to study the process of conservation of Puen ancestors worship festival towards tourism promotion in Nakhon Nayok province.

III. CONCEPTUAL FRAMEWORK



IV. RESEARCH METHODS

This research was a quantitative research which study the needs for conservation of Puen ancestors worship festival, the process of conserving towards promoting tourism activities in Nakhon Nayok province. There were methods of conducting research as follows.

A. Population and sample

1. Population used in this research was 1,242 households in Sai Moon subdistrict, Ongkharak district, Nakhon Nayok province referenced from the statistic of Thailand information center in year 2020.

2 The sample group by collecting data from people in the community of Sai Moon subdistrict, Ongkharak district, Nakhon Nayok province who had participated in Puen ancestors worship festival. The researcher determined the number of samples based on Taro Yamane fomula with a confidence level of 90% and a tolerance of + - 10. The sample size obtained from the calculation was 92.54 samples. For the convenience of data collection, the researcher collected the data with a sample of 100 people using convenience sampling.

B. Research Instruments

The research instruments were questionnaires created from relevant concepts and theories, as well as the conceptual framework established to the study issue. There were 3 parts: Part 1, the general information includes gender, age and education, in the level form of nominal scales. Questions were multiple choice and respondents had to choose only one answer. Part 2, the process of conservation Puen ancestors worship festival to promote tourism activities in Sai Moon Subdistrict, Ongkharak District, Nakhon Nayok province. And part 3, tourism promotion activities in Sai Moon Subdistrict, Ongkharak District, Nakhon Nayok province. The questionnaire part 2-3 was based on Likert's rating scale 5 levels: highest, most, moderate, less and least. Respondents must choose to respond based on feedback at a certain level. Data analysis was a level scoring with a Likert scaling basis.

C. Data analysis

Data analysis was used to process from the questionnaire in a statistical package using descriptive statistics. Part 1 the researcher selected percentage to describe the frequency and percentage of the data obtained from the questionnaire in the personal factor data. Part 2 and part 3 the researcher used the sample mean and standard deviation to explain the mean of the data obtained from the Puen ancestors worship festival conservation process and tourism promotion activities in Sai Moon subdistrict, Ongkharak district, Nakhon Nayok province, it was necessary to analyze with inferential statistics to test the hypothesis. The statistics used for data analysis were coefficient analysis of the correlation between the process of conserving Puen ancestors worship festival and tourism promotion activities and the regression correlation by the Enter method, used to analyze the process factors affecting the conservation of Puen ancestors worship festival to promote tourism activities in Sai Moon Subdistrict, Ongkharak district, Nakhon Nayok province.

V. RESEARCH RESULTS

For research on conservation process, Puen ancestors worship festival to promote tourism activities in Nakhon Nayok province, the researcher analyzed the data by dividing the analysis results into 4 parts as follows: part 1 general information of the respondents, including gender, age and educational level, part 2 Puen ancestors worship festival conservation process to promote tourism activities in Nakhon Nayok province, including cultural collection and conservation process, public relations, organizing activities, participation and transfer of local wisdom, part 3 need for tourism promotion activities and part 4 hypothesis testing.

1. General information of the sample: The majority of the sample were female (52%), aged 21-30 years (34%) and graduated with a bachelor's degree (32%)
2. Results of analysis on the conservation process of Puen ancestors worship festival to promote tourism activities in Nakhon Nayok province consisted of the process of cultural collection and preservation process, public relations, organizing activities, participation and transfer of wisdom.

Table 1. shows the results of the conservation process of Puen ancestors worship festival to promote tourism as a whole

The conservation process of Puen ancestors worship festival to promote tourism as a whole	Level of need			
	\bar{X}	S.D.	Level	Rating
Cultural collection and conservation process	3.37	.825	Moderate	3
Public relations	3.68	.675	High	2
Organizing activities	3.80	.542	High	1
Participation	3.63	.613	High	3
Transfer of wisdom	3.37	.757	Moderate	4
Overall	3.56	.546	High	

From Table 1 showed the conservation process of Puen ancestors worship festival as a whole. It was found that most of the sample group had a high level of demand for Puen ancestors worship festival conservation process to promote tourism activities in Nakhon Nayok Province ($\bar{X} = 3.56$). When considering each aspect, it was found that the results were at a high level of 3 items and a moderate level of 2 items, sorted by descending average as follows: organizing activities ($\bar{X} = 3.80$), public relations ($\bar{X} = 3.68$), participation ($\bar{X} = 3.63$), wisdom transfer ($\bar{X} = 3.37$) and cultural collection and conservation process ($\bar{X} = 3.37$), respectively.

Cultural collection and conservation process was at a moderate level ($\bar{X} = 3.37$). When considering each aspect, it was found that all of the conservation processes were at a moderate level, sorted by descending average as follows: the local scholars were interviewed to collect cultural data for the conservation of the Thai Sart tradition ($\bar{X} = 3.48$), followed by cultural data collection, recording and storage using technology ($\bar{X} = 3.48$), taking cultural records ($\bar{X} = 3.31$) and writing to disseminate cultural information to people in the community and tourists ($\bar{X} = 3.22$), respectively.

Public relations were at a high level ($\bar{X} = 3.68$). When considering each aspect, it was found that the conservation processes of 3 items were at a high level and 1 item at a moderate level, sorted by means of descending mean as follows: producing outdoor media such as billboards ($\bar{X} = 3.90$), followed by a sound line to inform information about activities within the community ($\bar{X} = 3.84$), participating in exhibitions at various events such as Thai Tourism Fair,

Trade Shows and Conferences, etc. (\bar{X} = 3.57) and publicizing activities through advertising media (\bar{X} = 3.41), respectively. Organization of activities was at a high level (\bar{X} = 3.80). When considering each item, it was found that the conservation processes of 3 items were at a high level and one at a moderate level, sorted by means of descending mean as follows: organizing merit-making activities (\bar{X} = 4.04), followed by the rice stirring tradition (Khao Thip) with local people (\bar{X} = 3.97) organizing activities related to raising awareness (\bar{X} = 3.81) and inviting tourists to participate in cultural exchange using art and culture as a means of building relationships (\bar{X} = 3.37), respectively.

The participation was at a high level (\bar{X} = 3.63). When considering each item, it was found that the conservation processes of 4 items were at a high level and 2 items at a moderate level, sorted by means of descending mean as follows: working together to organize Puen ancestors worship festival (\bar{X} = 4.01), followed by encouraging people in the community to join and participate (= 3.78), encouraging tourists to participate in Puen ancestors worship festival (\bar{X} = 3.69), the donation of materials for Puen ancestors worship festival (\bar{X} = 3.61), the participation in the evaluation of Puen ancestors worship festival (\bar{X} = 3.46) and having a network of cooperation to support cultural activities of Puen ancestors worship festival (\bar{X} = 3.23).

The transfer of wisdom was at a moderate level (\bar{X} = 3.37). When considering each item, it was found that the conservation processes of one was at a high level and 5 items at a moderate level, sorted by means of descending mean as follows: local scholars are educated to the future generations to be aware of all processes (\bar{X} = 3.83), followed by educating both the school system and the non-school system as a local curriculum to students (\bar{X} = 3.42), establishment of Puen ancestors worship festival learning center (\bar{X} = 3.28), a sufficient number of local scholars to provide information to tourists (\bar{X} = 3.24), the relevant departments have a policy to continually support (\bar{X} = 3.23) and organizing a forum for exchanging knowledge of local traditions and cultures (\bar{X} = 3.22).

2 The results of analysis of the need for tourism promotion activities will be defined in 5 areas as follows: establishing routes to facilitate access to tourist attractions, arranging tourist facilities, organizing activities focused on the participation of tourists, arrangement of a souvenir shop for tourists and providing adequate accommodation to meet the needs of tourists.

Table 2 shows the analysis of the needs of tourism promotion activities.

Need for tourism promotion activities	Level of need			
	\bar{X}	S.D	Level	Rating
Establishing routes to facilitate access to tourist attractions	3.37	1.143	Moderate	4
Arranging facilities to serve tourists	3.64	1.000	High	2
Organizing activities focused on the participation of tourists	3.74	860	High	1
Souvenir shop for tourists	3.49	1.105	Moderate	3
Adequate accommodation to meet the needs of tourists	3.04	1.333	Moderate	5
Overall	3.46	807	Moderate	

From Table 2, it was found that the majority of sample groups had a moderate demand for activities promoting tourism for conservation of Puen ancestors worship festival in Sai Moon subdistrict, Ongkharak district, Nakhon Nayok province (\bar{X} = 3.46). When considering each item, it was found that the conservation processes of 2 items were at a high level and 3 items at a moderate level, sorted by means of descending mean as follows: organizing activities that emphasize the participation of tourists (\bar{X} = 3.74), followed by arranging tourist facilities such as signposts, brochures of tourist attractions (\bar{X} = 3.64), arrangement of a souvenir shop for tourists (\bar{X} = 3.49), route planning to facilitate access to tourist attractions (\bar{X} = 3.37) and providing adequate accommodation to meet the needs of tourists (\bar{X} = 3.04).

3. The results of the relationship analysis between the conservation process of Puen ancestors worship festival and the tourism promotion activities in Nakhon Nayok province.

Table 3 shows the relationship between the conservation process of Puen ancestors worship festival and the tourism promotion activities in Nakhon Nayok province.

variable	X1	X2	X3	X4	X5	X6	Y
X1 Cultural collection and conservation	1						
X2 Public relations	.319*	1					
X3 Organizing activities	.447*	.485*	1				
X4 Participation	.519*	.590*	.596*	1			
X5 Transfer of wisdom	.534*	.606*	.555*	.631*	1		
X6 Overview of the need to conservation festival	.723*	.743*	.738*	.851*	.875*	1	
Y Overview of tourism promotion activities	.479*	.662*	.539*	.618*	.860*	.818*	1

*p < .05

From Table 3, it was found that Puen ancestors worship festival conservation process was associated with the activities promoting tourism at a high level ($r = 0.818^{**}$). When considering each aspect of the relationship between the conservation process of Puen ancestors worship festival, Nakhon Nayok province, it was found that cultural collection and preservation process were associated with low level of tourism promotion activities ($r = 0.479^{**}$). Public relations correlated with tourism promotion activities at a moderate level ($r = 0.662^{**}$). Activity organization was associated with

activities that promote tourism at a moderate level ($r = 0.539^{**}$) Participation was associated with moderate tourism promoting activities ($r = 0.618^{**}$). Wisdom transfer was associated with tourism promotion activities at a high level ($r = 0.860^{**}$).

4. Analysis of a stepwise multiple regression analysis between the conservation process of Puen ancestors worship festival and the tourism promotion activities of Nakhon Nayok province.

Table 4 shows a stepwise multiple regression analysis between the conservation process of Puen ancestors worship festival and tourism promotion activities of Nakhon Nayok province.

Conservation process of Puen ancestors worship festival to promote tourism activities	Unstandardized Coefficients		Standardized Coefficient	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.304	.304		-1.002	.319
Cultural collection and conservation process	.012	.060	.013	.207	.836
Public relations	.242	.080	.202	3.038	.003**
Organizing activities	.043	.097	.029	.448	.655
Participation	.051	.097	.039	.524	.602
Transfer of wisdom	.736	.078	.690	9.382	.000**

R = 0.879 R Square = 0.773 Std. Error of the Estimate = 0.395 F = 63.901, Sig = 0.000

From Table 4, it was found that the relationship and predictive power of Puen ancestors worship festival conservation process, which were cultural collection and preservation process, public relations, event organization, participation and wisdom transfer were used to predict tourism promotion activities statistically at the 0.05 level ($F = 63.901$, $p < .05$). Predictive power was 77.30 percent ($R = 0.879$, $R^2 = 0.773$). From a multi-step regression analysis to find variables with predictive power in terms of Puen ancestors worship festival conservation, when considering each aspect, it was found that public relations had a regressive coefficient of .202 in tourism promotion activities and the transmission of wisdom had a regressive coefficient of tourism promotion activities of 0.690, which was statistically significant at the .05 level.

VI. DISCUSSIONS

1. This study was found that the majority of the sample group had a high level of demand for Puen ancestors worship festival conservation process to promote tourism activities in Nakhon Nayok Province. When considering each aspect, it was found that it was at a high level of 3 sides and moderate on 2 sides, sorted by means of descending mean as follows: organizing activities, public relations, participation, wisdom transfer, and cultural collection and preservation, respectively. The results could be discussed as follows.

Cultural collection and conservation were at a moderate level. When considering each item, it was found that all of the conservation processes were at a moderate level. With the highest average, local scholar interviews were conducted to collect cultural data related to the conservation of Puen ancestors worship festival, followed by cultural data collection, recording and archiving. This may be because the Sai Moon community, Ongkharak district, Nakhon Nayok province have yet to actively promote cultural collection and conservation because Puen ancestors worship festival was a local way of life and culture that has been practiced. However, the cultural collection and preservation process was an important process and enabled future generations to maintain Puen ancestors worship festival and sustain their ancestors. Local scholar, who had their own unique knowledge, had the ability to develop and improve their skills and expertise and apply them in accordance with modern times and transfer knowledge to villagers in the community for use. Hence, the community needed to interview local scholar to gather cultural information in terms of conservation of Puen ancestors worship festival, along with collecting cultural data, recording and archiving using technology. This concept was consistent with Patcharaporn Chaipattanamethee [11], said that knowledge management of local wisdom required the collection, storage and transfer of local scholar knowledge available in the community in order to preserve them in order to continue with the community. But the major problem of the information management of the current local wisdom of the Wang Pong community was the lack of systematic management and the live broadcast is not yet widespread, resulting in the loss of these valuable knowledge. This is consistent with the research results of Phra Kru Siri Dhammapirat [9] suggesting that knowledge should be systematically stored so that it could be transmitted to future generations effectively and for the persistence of a sustainable prayer tradition. In line with the research of Chatree Sreejun [6], found that the Ban Mad community had a continuous tradition, the local scholar club establishment and the establishment of a learning center for cultural traditions in the community to link the database between traditional cultural networks.

Public relations were at a high level. When considering each item, it was found that there were 3 conservation processes at a high level and one at a moderate level. For the item with the highest average was the preparation of outdoor media such as billboards, followed by a broadcasting system to inform information about activities within the community. This may be because the community realized that public relations would help both Thai and foreign tourists to know more about Puen ancestors worship festival, including attracting more

tourists to come to travel in the community. Therefore, the community would like to promote the preparation of public relations materials to invite tourists to join the activities and the use of broadcasting system was to inform people in the community about the activity and everyone in the community to take part in it. This was consistent with the research of Thitirada Premree [7], found that the Lam Pee Pha tradition of the Na Siew subdistrict administrative organization, Muang district, Chaiyaphum province needed to be improved, that is, a variety of media should be used as a tool to promote the event thoroughly, and there should be a plan to promote the event in advance by collaborating with other agencies such as the SAO and PAO, etc. And research by Chatree Sreejun [6], found that Ban Mad community had a continuous tradition of events, the local scholar club establishment, meeting together for work preparation and dissemination of news through the tower for community news distribution.

The organization of activities was at a high level. When considering each item, it was found that there were 3 conservation processes at a high level and one at a moderate level. The highest average item was the merit-making activities, followed by the rice stirring tradition (Khao Thip) with local people. This may be because Thai Sart traditions were the nature of the merit-making activities. As it was a tradition of belief in karma and charitable devotion, it reflected gratitude to the ancestors. There was also a stirring of Khao Thip because they believe that if anyone had attended this ritual, they would receive high merit and whoever ate Khao Thip, that person will only experience happiness. It was also an activity that would allow people of the community to participate in doing activities together. The grandchildren who went to work elsewhere would return to join this activity. Both of these activities were prominently executed traditions for promoting tourism. Consistent with the research of Maneerat Kamlangkue and Wanna Nuuen (2017), found that Tenth Lunar Month festival reflects the identity of the people of Nakhon Si Thammarat Province through the views of both insiders and outsiders, both positive and negative. The positive viewpoint is that people in Nakhon Si Thammarat Province are grateful to their ancestors, love and unity, and adhere to Buddhist principles. Tenth Lunar Month festival also plays a prominent role in promoting cultural tourism in Nakhon Si Thammarat Province. In line with the research of Walanya Suwanbandit and Rewadee Ungpho[14], found that the rice stirring tradition (Khao Thip) is a cultural reflection that contributes to the heritage and the way of life, promoting unity in the community as well as a harmonious kinship system showing a sense of unity of members of society.

Participation was at a high level. When considering each item, it was found that there were four conservation processes at a

high level and two at a moderate level. The highest average item was the cooperation to organize Puen ancestors worship festival, followed by encouraging people in the community to join and participate in this merit-making event. The community realized that in order to sustain and transfer traditions for sustainability, people in the community must be aware of culture, faith and beliefs, along with local awareness, thus creating cooperation in conserving the traditions of the community such as stirring activities in Khao Thip, which requires a great deal of effort by local people. Consistent with the research of Phra Sontorn Kijkoson (Savoy Jantarat), Phra Maha Somboon Wuthikaro and nun Krisana Raksaeng [10] found that, the success of the tradition of stirring up the Khao Thip required the faith and beliefs of the people and community leaders who would work together to preserve the tradition because co-operation was required in the preparation of stirring equipment and the procurement of various items. The Research by Navamon Udomrat [8] found that the majority of residents of the Liapkhlong Mon Community would take part in the conservation of Tak Bat Phra Roi Tradition Thang Rue at the level of operation to achieve its goals by participating on the day of the event. Guidelines for supporting people's participation in the conservation of Tak Bat Phra Roi Tradition Thang Rue were as follows: dissemination of information, events and traditions for interested parties and encouraging all sectors to participate freely and equitably. Decisions for the participation of citizens could be described by the concept of local community in two ways: 1. engaging in terms of local feelings of love and attachment and 2. participating in the sense of pride in being Mon.

The transfer of wisdom was at a moderate level. It was found that there were conservation processes at a high level and 5 at a moderate level. The highest average item was the transfer of knowledge to the next generation in all processes by local scholar, followed by educating both the school system and the non-school system as a local curriculum for students. This may be because the community had not made the collection of local scholar knowledge and the younger generation still lacks the awareness and conscience in the inheritance of wisdom. Consistent with the research of Paisan Sansornwisut et al [12], suggested that relevant agencies were required to raise awareness of learning among community leaders, local scholar, conservationists, especially learners because this learner would continue to study, transmit and maintain these cultures. Consistent with the research of Areerat Putirungroj [15] found that, for the conservation and inheritance of Thai kite wisdom, a strategic plan and development plan must be developed so as not to lose the knowledge of Thai kites along with collecting and integrating knowledge of kites, organizing

teaching and learning activities in educational institutions, creating a local curriculum for youth and interested people and setting up a forum for sharing knowledge and experiences within the community.

The study was found that the majority of the sample group had a moderate demand for tourism promotion activities for conserving Puen ancestors worship festival in Sai Moon subdistrict, Ongkharak district, Nakhon Nayok province. When considering each item, it was found that it was at the high level 2 questions and the moderate level 3 questions. The highest average item was the organization of activities focused on the participation of tourists, followed by amenities for tourists such as signboards and tourist brochures. In line with Kittisak Klinmuenwai [4] research found that, tourists had opinions about cultural tourism promotion guidelines in terms of the security system of tourist attractions such as security guards and signposts in Tha Ma-O community, Muang District, Lampang Province. The research by Thitirada Prempee [7] found that, the Lam Pee Pha tradition of the Na Siew subdistrict administrative organization, Muang district, Chaiyaphum province needed to be improved, that is, there should be signs indicating the way to the venue clearly, along with improving and facilitating transportation such as the road is damaged and a variety of media should be used as a tool to promote the event thoroughly

2. From hypothesis testing, it was found that public relations had a lower coefficient of tourism promotion activities of .202 and transfer of wisdom had a regressive coefficient of tourism promotion activities of 0.0690, a statistically significant at the .05 level. This may be because public relations and knowledge transfer as a guideline for sustainable conservation of Puen ancestors worship festival of communities in Sai Moon subdistrict, Nakhon Nayok province. The community would like to use public relations and wisdom methods as it helps to promote tourism activities better. Consistent with the research of Jamniennai Singharak [5] found that, the local wisdom conservation approach was an operation to prevent the knowledge of the spirit sacrifice tradition to be lost. There was an important internal factor that was the transfer of wisdom. Therefore, knowledge was gathered and used to organize teaching and learning activities in educational institutions as a local curriculum for youth and interested people to exchange, learn and have experiences together within the community along with increasing public relations through various media to raise awareness, creating a conscience in the inheritance of wisdom to remain with Thai society until the generations.

VII. CONCLUSION

In conclusion, the research showed that conservation needs on Puen ancestors worship festival, were high level and in considering each aspects, it was found that the organizing activities, public relation and participation were high level. Wisdom transfer and cultural collecting and conservation process were moderate level. Meanwhile, for tourism promotion activities, it was found that the demand of providing facilities to serve tourists and organizing activities focused on participated of tourists were high level. The hypothesis testing found that individual factors have different level conservation needs on Thai Ancestors Ceremony Day is no different. Wisdom transfer factors affected to tourism promotion at high level with correlated in the same direction.

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The Guidance for Increasing in Channel of Distribution Development Case Study: Bangphli Community Enterprise (Punika Decoupage)

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Abstract— This research aimed 1) to study the channels distribution of Bangphli Community Enterprise Punika Decoupage 2. To Study a procession in channel distribution of Bangphli Community Enterprise (Punika Decoupage). This research was conducted by Qualitative research by used deep interview. The key information is 12 people from board of Bangphli Community Enterprise (Punika Decoupage) to study ways of Increasing in Channel of Distribution Development. Data were analyzed using Content Analysis techniques. the result founded:

The channels distribution of Bangphli Community Enterprise (Punika Decoupage) have two type of channels distribution as follow: a Direct Channel, market's distribute by an official store Which is located at 67/10, Bang Chalong Subdistrict, Bangphli District, Samut Prakan Province, Website distribution channels, Online distribution channels and distribution channels by exhibiting at various trade shows. an Indirect Channel by selling products through marketing intermediaries via middlemen. a procession in channel distribution of Bangphli Community Enterprise (Punika Decoupage) can classify the ways to increase efficiency into 4 areas Consist of product, price, place, promotion, people, physical evidence, and process.

Keywords— Community enterprises, Development of community product, Distribution channels

I. INTRODUCTION

From the past to the present Thailand's economy has a high risk and not yet able to step out of the trap of middle-income countries. Due to many reasons One of the important reasons is the high economic inequality. According to a 2016 The Global Wealth Report that was published by Credit Suisse Group [1], Thailand was the third of economic inequality country of the world besides the second, India and the most of economic inequality country in the world, Russia Federal which 1 % of the richest people holding 58% of a country property.

The government has therefore given importance to the development of the country in special economic circumstances. The aim of the government policy is to focus on economic development based on innovation under the concept of Thailand 4.0 which Community enterprises, Small and Medium enterprises are the key to strengthening the economic progress of Thailand [2]. Community enterprises, Small and Medium enterprises can solve a country economic

problem by generate income and employment. It is also an important mechanism to solve the country's poverty problem. In 2015, Thailand has 72,911 community enterprise registered with the Office of the Secretary of the Community Enterprise Promotion Committee small and medium enterprises a total of 2,736,744 cases, of which 99.60 percent are small enterprises of all country [3]. The employment of small and medium enterprises accounted for 77.86 percent of the country's total employment. The gross domestic product value of community enterprises, small and medium enterprises accounted for 42.35 percent of the gross domestic product. The export value of community enterprises and small and medium enterprises accounted for 28.40 percent of the country's total export value [4].

Due to the research project set the learning process of communities and the implications of people in the communities: a case study of the strengthening communities in Samut Prakan province [5] Advice and information on the research proposal, and therefore had the opportunity to study. Preliminary discussion and participation in the development of Bang Phli's Community enterprises (Punika Dekupage). There are 31 members within the group and the average

monthly sales amount is 70,000 baht. The group is not satisfied with the sales received in each month and wishes to expand the market of the products of the group itself to be more widespread because at present, the distribution channel has only one level distribution channel such as the office Facebook Fan page, The main front store at Bang Phli sub district, exhibitions at the trade show. Therefore, there is a need to expand the distribution channels for more products. So that, for the research results to be useful for business development of community enterprises, the researcher therefore is interested in studying the development of product distribution channels of Bang Phli Community enterprises (Punika Dekupage). In order to further enhance the competitiveness of the current situation, the growth of mobile phones, smart phones and commerce on mobile phones has affected the landscape of commercial commerce [6] especially in the handbag market that holds a global market value of up to 94.7 billion US dollars and continues to grow by 5% [7] which has not been counted in traditional marketing channels. In addition, there are other marketing channels, such as sales applications via TV programs, Sales in the form of entrepreneurs and entrepreneur. The research results will make Bang Phli Community enterprises (Punika Dekupage) dominate the market revenue from product sales and increased competitiveness is also a result of strong community economy and income distribution.

II. RESEARCH OBJECTIVES

1. To study product distribution channel of Bang Phli Community enterprises (Punika Dekupage).
2. To study guidelines for increasing development efficiency product distribution channel of Bang Phli Community enterprises (Punika Dekupage).

III. LITERATURE REVIEW

In this research, the researchers have studied and analyzed concepts, theories, and literature review as follows:

The Concepts of community enterprises

Definition of community enterprise according to Community Enterprise Promotion Act 2005 means a community affair regarding production of products, services or other activities That is operated by a group of people that share the same lifestyle and gathering for undertake business. Whether it is a juristic person in any form or not a juristic person to generate income and for self-reliance of the family Communities and between communities [8].

The Concepts of Thailand 4.0 model

In creating a Thailand 4.0 model that is a value-based economy, it wants to change the production structure,

emphasizing the use of technology and innovation to add value to products and services to push the country out of the traps that are facing [9]

1. Middle-income countries trap
2. Inequality trap
3. Development imbalance trap

An economy that is driven by innovation will change the economic structure into an era of value-based economy as following.

1. Change from commodity production to innovative products
2. Change from driving the country with industrial sector to technology driven Creativity and innovation
3. Change from focusing on the manufacturing sector to focus on the service sector

The Concepts of Startup Business

Startup business is a business that is planned to grow at a leap from a few people which the products that are made will focus on the innovation. What if a business cloud have a good action plan that can create jobs for people worldwide could grow quickly [10]. The startup business has a tradition of funding by requesting money from investors which investors will have the right to share revenue or be a partner. There are two types of investors as following.

1. Venture Capital is a venture capital business that is invested as a partner with the company in a long-term investment.
2. Angel Investor is usually an independent investor or a group of independent investors using personal funds to invest in a business.

The Concepts of Distribution Channel

Distribution Channel is a process that moving product from a producer to a customer in term of physical and ownership [11] and ownership which compose with four elements as following.

1. Middleman, Merchants and Agent.
2. Businesses that distribute products.
3. Businesses that provide marketing services
4. Financial institution

IV. RESEARCH METHODS

Population

The key informants of this research were 12 committees [12] of Bang Phli Community Enterprise (Punika Decoupage), who were selected because they were involved in every step of the production and distribution processes of Bang Phli Community Enterprise (Punika Decoupage).

Research Instrument

In this study, the main research instrument was in-depth interview. The questions that were used to collect data covered the following topics:

1. History and background of Bang Phli Community Enterprise (Punika Decoupage).
2. Production process of decoupage products.
3. Product distribution channels of Bang Phli Community Enterprise (Punika Decoupage).
4. Guidelines for improving the distribution efficiency of Bang Phli Community Enterprise (Punika Decoupage).
5. Additional comments or suggestions.

Data Collection

Regarding the in-depth interview process, the researcher prepared broad questions in advance in order to collect the data from the key informants. The questions were flexibly used, and the order of the questions could be appropriately changed. Casual and friendly conversations were used to obtain the answer relevant to the first and second research objectives.

Field data collection: the researcher studied the basic information about the guidelines for improving the distribution efficiency of Bang Phli Community Enterprise (Punika Decoupage) using the following procedures.

1. Interviews: the researcher mainly used in-depth interviews to collect the data from the key informants. A series of questions were asked in an informal and conversational manner in order to make the key informants feel comfortable to give answers and openly express their opinions.
2. Conversation recording: the researcher thoroughly recorded all information, answers, and comments during the interviews and observations. The tools that were used to record the data were pencils, pens, notebooks, and voice recorders. The obtained data were consequently studied and analyzed.

Data Analysis

The data gained from the in-depth interviews were organized and analyzed as follows.

1. The researcher examined the reliability of the data recorded from the interviews.
2. The obtained data were transcribed into texts and then organized by using the grouping technique.
3. Each group of data were thoroughly analyzed and discussed with the descriptive analysis

V. RESEARCH RESULTS

The results obtained from the in-depth interviews with 12 committees of Bang Phli Community Enterprise (Punika Decoupage) regarding the guidelines for improving the

efficiency of distribution channels can be summarized as follows.

1. According to the research results, Bang Phli Community Enterprise (Punika Decoupage) used 2 types of distribution channels: direct and indirect channels. Direct channels refer to distributions channel by which manufacturers sell their products to consumers directly without middlemen. By using direct distribution channel, Bang Phli Community Enterprise (Punika Decoupage) had to initiate and carry out marketing activities on its own. Bang Phli Community Enterprise (Punika Decoupage)'s direct distribution channels, which were considered the shortest channels of distribution, included the storefront located at 67/10, Bang Chalong Subdistrict, Bang Phli District, Samut Prakan Province, official website, online distribution channels, and promotional booths at trade fairs and exhibitions held in various locations such as city hall, department stores, OTOP centers, and Muang Thong Thani. Indirect channels refer to distribution channels by which manufacturers sell products to consumers through middlemen, who help to conduct sale and marketing activities in order to increase sale volumes and expand markets. Middlemen can determine buying prices from manufacturers and set selling prices to consumers. Bang Phli Community Enterprise (Punika Decoupage) sold the products wholesale to middlemen, who placed an order via phone and came to pick them up at the community enterprise's office or producers' houses. Then the middlemen would sell those products to customers at events or exhibitions that were periodically held.

2. Bang Phli Community Enterprise (Punika Decoupage) could improve the efficiency of their distribution channels in the aspect of price by making price tags that showed differences in product sizes and setting both the retail prices (per unit, 3 units, 10 units, and dozen) and wholesale prices of the products.

3. Bang Phli Community Enterprise (Punika Decoupage) could enhance the efficiency of their distribution channels in the aspect of distribution channels by using digital marketing channels such as Facebook and Line, selling products at OTOP fairs in Muang Thong Thani, government centers, city halls, community shops, vintage markets, and floating markets, and opening promotional booths according to the invitation of government agencies, community product retailers, gas stations, and hospitals.

4. Bang Phli Community Enterprise (Punika Decoupage) could increase the efficiency of their distribution channels in the aspect of marketing by developing the components of product display, creating vinyl signs that showed the name and image of products, exhibiting products in various festive and seasonal events, updating its website with the latest

product images, awards, events, activities, the community enterprise's information, and relevant clip videos such as TV program promoting its products and clip videos about related trade shows. The information of each product, including images, awards, and promotional activities, should be presented, and promoted on the official Facebook fan page of Bang Phli Community Enterprise (Punika Decoupage) through the internet network.

VI. CONCLUSIONS

The research results about the guidelines for improving the efficiency of distribution channels of Bang Phli Community Enterprise (Punika Decoupage) can be discussed as follows.

1. The guidelines for improving the efficiency of distribution channels in the aspect of product include developing various new products and creating product differentiation to provide alternatives for consumers. Chiarakul [13], who carried out a study entitled "the Problems and the Adaptation of OTOP to AEC," similarly suggested that in the marketing aspect, entrepreneurs should develop innovative products that can create value for consumers, create modern packaging, develop certified products, and find niche target markets and marketing channels to cover the target in the lowest cost. Thus, Bang Phli Community Enterprise (Punika Decoupage) should develop a wide variety of products that are in line with the needs of consumers.

2. The guidelines for improving the efficiency of distribution channels in the aspect of price are determining appropriate and fair prices according to designs, sizes, and number of orders, setting the retail prices (per unit, 3 units, 10 units, and dozen) and wholesale prices of the products, and attaching clear price tags to the products. This is consistent with a research study entitled "Guidelines to Promote the Marketing Strategies under the Self-Sufficiency Economic Philosophy of the Community Enterprise in Samsung District, KhonKaen Province" of Nitiwattana [14], which stated that in the dimension of price, the community enterprise should focus on determining prices based on the products' quality, giving credit based on financial principles, regularly informing members about the updated prices, setting fair prices, not taking advantage of consumers, and not focusing on short-term interests.

3. The guidelines for improving the efficiency of distribution channels in the aspect of distribution channels are participating in trade shows and exhibitions. This is in line with a study entitled "Development of Marketing Management Model and Local Wisdom in Handicraft Products to Strengthen the Dongdeau Community, Kong Krailat District, Sukhothai Province" of Wongsangtian et al. [15], which suggested that the guidelines for developing

marketing management model and local wisdom in handicraft products in the aspect of distribution channels include joining trade exhibitions to showcase and sell products and using digital marketing channels or websites to offer products and delivery services and receive online orders.

4. The guidelines for improving the efficiency of distribution channels in the aspect of marketing promotion are developing the components of product display and using a demonstrator to recommend how to use earthen steamer with an electric rice cooker. This is consistent with Chungcheong [16], who conducted a study entitled "Development and Standard Business Process Management of OTOP and Community Product Stores in Ranong Province" and indicated that in the marketing promotion aspect, the entrepreneurs are friendly and can directly recommend products to customers because they sell their products by themselves.

In addition, Bang Phli Community Enterprise (Punika Decoupage) should expand marketing channels by directly communicating with customers using modern communication technology and digital platforms, selling products through e-commerce, and conducting online marketing activities on automated websites and online marketplaces such as Lazada, eBay, and Shopee. According to a survey carried out by the National Electronics and Computer Technology Center [17], it was found that the number of people purchasing products and services via the internet rose to 57.2%, compared to 47.8% in 2009. The most popular products purchased online were books (34.7%), followed by reservations of rooms, hotels, vehicles, and movie tickets (31.3%), clothing (26.7%), DVD movies (17.2%), computer equipment (16.7%), and cosmetics (16.2%). The value of ordered products mostly ranged between 1,000-5,000 baht (37.9%), followed by less than 1,000 baht (26.2%), and 5,000-10,000 bath (15.7%). These survey results clearly reflect the growth of online shopping. However, it is important for online business owners to be honest to customers in terms of providing qualified products and delivering products on time. At the same time, they need to continuously improve their website and update new products to attract customers. This is in line with the research results about the factors influencing decision making in purchasing product on e-commerce of Bumrerb and Nakkasem [18], which suggested that the marketing promotion factors that affect consumers' decision making in purchasing product on e-commerce include free delivery service and special discount. Apart from accessing the internet via computer, apart from computer, at present mobile is another tool that has been increasingly used to access the internet. Among Thailand's population of 68.05 million people, 47 million use smartphones to access the internet, which accounts for 69% of the country's total population [19].

This situation has led to an emergence of mobile commerce (m-commerce). The strength of m-commerce, which is different from other e-commerce systems, is that it can serve the needs of consumers without limitations of time and place [20].

VII. RECOMMENDATION

1. Marketing channel development is a marketing strategy that is used to develop business effectiveness, truly serve the needs of consumers, and gain a competitive advantage in the market. Bang Phli Community Enterprise (Punika Decoupage) should focus on developing digital marketing channels and online marketing activities, which are considered a modern marketing strategy that is suitable for current situations and has been widely used among entrepreneurs.

2. Bang Phli Community Enterprise (Punika Decoupage) should develop various marketing channels to serve the diverse needs of target customers and place importance on improving its marketing channels in every aspect, including product, price, distribution channel, and marketing promotion. This is because marketing channel development is a way to make community enterprises adapt to changes and survive highly competitive markets.

3. Future research on local or community development should be conducted using participatory action research (PAR) method. As this method is an important tool to create new knowledge through participation and action of all related parties in every process, it not only can develop the community but also strengthen local people's and community organizations' ability to understand and solve their problems, which ultimately leads to self-reliance and sustainable development

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Guidelines for tourism development of farm stay according to the King's Philosophy of Sa Kaeo province

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Abstract— The objectives of this research are 1) to study the potential of a farm stay community based on the King's philosophy 2) to be a guideline for the development of farm stay tourism based on the King's philosophy and 3) to create a farm stay business model according to the King's philosophy using mixed method research descriptive Statistics by questionnaire The target group is agricultural entrepreneurs that a total of sampling 400 of them were female, totaling 208. Education under Bachelor's degree 284 Occupation farmers 117 income 10,001-20,000 baht, total 132. The analysis of the potential level of communities in Sa Kaeo province found that Management potential of agro-tourism attractions followed by the capacity to support agricultural tourism sites and a qualitative study performed a SWOT analysis. SO Strategies include increasing public relations channels. WO Strategies is to develop skills, knowledge in process and product design. ST Strategies include maintaining and increasing product standards and the WT Strategies was to create a farm stay following the King's philosophy using a model.

Keywords— Tourism development, Potential Assessment of Agro-tourism, Farm stay tourism based on the King's philosophy

I. INTRODUCTION

Sa Kaeo Province is classified as a target group for the development of the Eastern Border Special Economic Zone in accordance with Strategy 3: restoring tourist attractions to safety and improving facilities to enhance the environment to be eco-tourism and link ancient civilizations together according to the 20-year national strategic framework to strengthen the economy and competition in the service sector because Sa Kaeo Province is the gateway to the east to Cambodia. This action is to build the business competitiveness of the service sector in terms of the development of new economic areas in the border areas [1]. The study found that there is a rapid increase in tourists in both second cities and communities, thus providing a good opportunity for income distribution in the area because this province has an abundance of natural and cultural tourism resources, traditions that are still intact and beautiful, as well as community lifestyles and local wisdom. These will attract tourists to new experiences and create attractions within the community and ultimately generate income into the Grassroots Economy [2].

Marketing tools are used to stimulate preparation and development of the area to be a balanced tourist destination in all dimensions. In line with the 2017 Sa Kaeo development

strategy that this province will be a source of agricultural production and the promotion of non-toxic agriculture, along with the development of quality tourism and generating income for the people In line with the vision of "Indochina's eco-tourism and logistics hub, energy crops and safe food" [3]. An interesting problem is the lack of development of farm stay tourism. Therefore, the researcher would like to study the guidelines for the development of farm stay tourism according to the King's Philosophy of Sa Kaeo Province.

II. RESEARCH OBJECTIVES

The objectives of this research article were 1) To study the potential of a farm stay community according to the King's Philosophy 2) To be used as a guideline for the development of farm stay tourism according to the King's Philosophy 3) To create a farm stay tourism model according to the King's Philosophy.

III. LITERATURE REVIEW

Agrotourism management consists of activities and learning processes that enhance the experience while raising awareness and good awareness among tourists, local residents and related entrepreneurs. In terms of area, agrotourism is tourism in tourist attractions related to nature and culture that is unique to the locality. In terms of participation, agrotourism is tourism that takes into account the participation of the

community and local people by thinking, planning and implementing a plan so that everyone can benefit thoroughly. It also contributes to income distribution and quality of life improvement, as well as the maintenance of tourism resources for the real benefit of the locality. In terms of management, agrotourism is responsible tourism without causing environmental and social impacts with sustainable management. Conservation of environmental resources, prevention and elimination of pollution and control of tourism development are covered in this study [4].

The concept of the King's Philosophy and the propulsion of new agricultural theory as an agricultural system for farmers with land to alleviate poverty. The aim of this concept is to produce in a manner of self-sufficiency with an ecosystem as a production system and primarily based on the capacity and self-sufficiency of farmers and households. The area is divided into appropriate proportions. [5]. The King's Philosophy is used to develop tourism by linking agricultural attractions together, for example, 1 rai for solving poverty project according to the concept of sufficiency economy of Ratchaburi province, the Pluak Daeng Development Service Center Project under the Royal Initiative of Rayong Province, which is a tourist and learning destination with new agricultural activities and the cultivation of non-toxic plants for a comprehensive study, and the Khung Kraben Bay Development Study Center under the Royal Initiative of Chanthaburi Province. These projects work for sustainable natural resource management [6]. Agrotourism management can be divided as follows: 1(A) is an integrated agricultural tourism destination. 2 (B) is a private agritourism attraction that is outstanding in the field of agriculture and is recognized by outsiders. 3 (C) is a private agricultural source or refers to villagers who do not focus on tourism but have interesting wisdom or techniques that are accepted by outsiders. 4 (D) is a learning center or agricultural wisdom conservation. 5 (E) is an animal and plant breeding research center that focuses on improving agricultural efficiency rather than tourism. 6 (F) is a community or villager grouped together to develop agricultural wisdom. [7].

Analyzed SWOT which includes: Strengths analysis is an internal organizational attribute that can be used to achieve desired goals and objectives and give the organization a strategic competitive advantage. Weakness analysis is an internal feature that limits or hinders an organization's operations and can put the organization at a strategic competitive disadvantage. Opportunity analysis is the external environment factor that will enable an organization or business to achieve its desired strategic objectives. The analysis of obstacles is the external environment that prevents or prevents the organization from achieving its desired goals

and objectives and can lead to a strategic competitive disadvantage. [8]

IV. RESEARCH METHODS

A. Research scope

Spatial boundaries of Sa Kaeo Province. Demographic scope and sample. The research population was agricultural entrepreneurs. The research started from March 2020–February 2021. The population and sample consisted of 26,894 farmers who used the service in the Sa Kaeo Provincial Information Center [9]. The convenience sampling was used in research. A sample of 400 people was selected using the Taro Yamane comparison table [10].

B. Research Process

Research tools

The research tool was a questionnaire to measure the potential of agro-tourism management. It could be divided into 3 parts as follows:

Part 1: Respondents' personal data includes gender, age, education level, occupation and income. The questions were in check-list format. The frequency distribution method was used and the result was summed up as a percentage.

Part 2: The components and indicators of agro-tourism management to measure agro-tourism management potential consisted of the rating scale, mean (\bar{X}) and Standard Deviation (S.D.) questionnaires. The researcher used the analysis and interpretation criteria based on Best's concept. [11].

Part 3: Recommendations are derived from a content analysis.

Data analysis

This research applied mixed method research both quantitatively and qualitatively. The statistical and data analysis methods used for this research were:

1. The quantitative data analysis used a questionnaire as a research tool to measure the potential of agro-tourism management and statistics were used for quantitative data analysis. Data can be classified into two types: 1.1) Reporting results using descriptive statistics, Checklist, Frequency and Percentage. 1.2) Rating scale questions, mean (\bar{X}) and standard deviation (S.D.) using statistical package program
2. The content analysis was performed using Purposive Sampling. The researcher conducted the research using the focus group of key contributors: mayor of Ban Dan Sub district Municipality, municipality members, community enterprise members, entrepreneurs, community leaders and community philosophers, totaling 28 people. Then, the SWOT theory was applied to categorize the answers in each

aspect for further building a farm stay tourism model according to the King's Philosophy.

V. V. RESULTS

The general information of the sample could be summarized as follows.

Sex: The majority of the respondents were 208 female (52.00%) and 192 male (48.00%) respectively.

Age: The majority of the respondents were aged 20-30 years, 165 people (41.25%), followed by 69 people aged 41-50 years old (17.25%), 57 people aged 31-40 years old (14.25%), of 59 people aged 51-60 years old (14.75%), 37 people over 60 years old (9.25) and 13 people under 20 years old (3.25 %), respectively.

Education Level: Most of the people who answered the questionnaire had 284 people with a bachelor's degree (71.00%), followed by 113 people with a bachelor's degree (28.25%) and 3 people with a postgraduate level (0.75%), respectively.

Occupation: The majority of the respondents farmer were 117 people (29.25%), followed by, work for wages of 82 people (20.50 percent), students/students of 60 people (15.00 percent), traders/personal businesses of 46 people (11.50%), company employees of 45 people (11.25 percent), civil servants / state enterprise employees of 29 people (7.25) and others of 21 people (5.25 percent), respectively.

Monthly income: Most of the respondents had an average monthly income of 10,001–20,000 baht, 132 people (33.00%), followed by income of 5,000–10,000 baht, 131 people (32.75%), income less than 5,000 baht, 106 people (26.50%) and income more than 20,000 baht, 31 people (7.75%), respectively. Agritourism management indications as shown in Figure.1

Agritourism management indicators	n = 400		Level of Opinion
	\bar{X}	S.D.	
Management potential of agrotourism sites	4.11	0.51	High
Potential to support agrotourism	4.08	0.54	High
Service potential of agricultural tourist attractions	4.04	0.65	High
Attractive potential of agricultural tourist attractions	3.97	0.64	High
Average total	4.05	0.52	High

Figure. 1 shows the mean and standard deviation of the overall data in the management of agrotourism.

Figure. 1 showed that the respondents had a high level of overall potential, with a mean of 4.05 and a standard deviation of 0.52. Considering each aspect, it was found that the opinion level was high in the following order: the potential for agrotourism management was high with an overall average of 4.11, followed by the capacity to support agricultural tourism sites with an overall average of 4.08, the potential of services in agrotourism centers was 4.04 and the attractiveness

potential of agrotourism sites was 3.97, respectively and summarizes TOWS Matrix as shown in Figure.2

External Factor \ Internal Factors	Strengths	Weaknesses
	Active SO Strategy S1,2,3,11,O1	Revised WO Strategy W1,2,5,6,O1
Opportunities	Develop a variety of public relations channels S1,2,3,4,6,7,9,10,11,O1,2	Develop knowledge in product design and product processing Develop knowledge in marketing for the community Develop knowledge in community-based tourism management
	Improve the potential of the learning base S1,2,3,7,O1,2	Develop knowledge of community-based tourism management for communicators and youth W3,4,7,O1,2
	Develop creative activities of tourism and diversify the needs of consumer groups.	Develop standards of learning base Make signs both within the community and outside the community. W8,O1,2
Threats	Protective ST strategy S1,T1 Maintain production standards and increase standards of community-oriented products.	Passive WT strategy W9,T1 Develop a participatory community-based tourism development plan

Figure.2 shows the results of the TOWS Matrix analysis.

Figure 2 summarizes the data analysis of the development strategy as follows: Protective ST strategy: 1) Maintain production standards and increase standards of community-oriented products. 2) Transfer knowledge of cultural heritage and local wisdom in Thai-Cambodian communities. 3) Exchange knowledge between groups to strengthen community enterprise groups. Active SO Strategy: 1) Develop a variety of public relations channels. 2) Improve the potential of the learning base 3) Develop creative activities of tourism and diversify the needs of consumer groups. Revised WO Strategy: 1) Develop knowledge in product design and product processing. 2) Develop knowledge in marketing for the community 3) Develop knowledge in community-based tourism management. 4) Develop knowledge of community-based tourism management for communicators and youth 5) Make signs both within the community and outside the community. 6) Develop standards of lifestyle tourism programs. Passive WT strategy (WT) 1) Develop a participatory community-based tourism development plan 2) Make a farm stay tourism model according to the King's Philosophy as shown in Figure.3

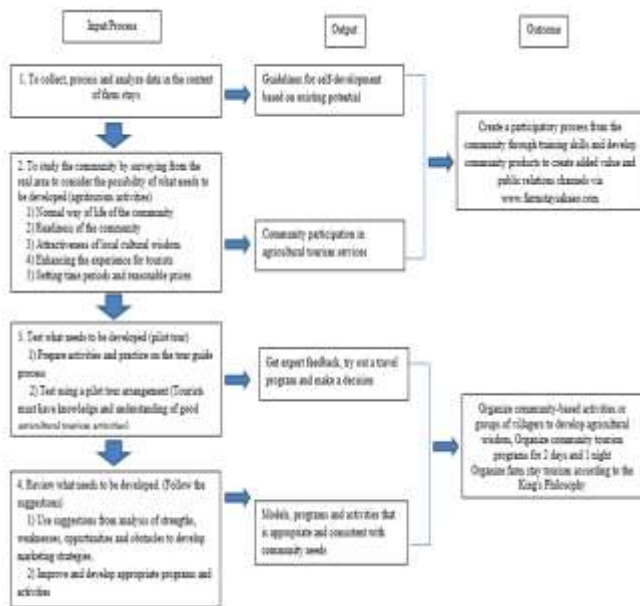


Figure. 3 Farmstay tourism model according to the King's Philosophy

Figure 3 shows the process of making a farm stay tourism model according to the King's science. Input/process: 1. to collect, process and analyze data in the context of farm stays. 2. To study the community by surveying from the real area to consider the possibility of what needs to be developed (agritourism activities): 1) Normal way of life of the community. 2) Readiness of the community. 3) Attractiveness of local cultural wisdom. 4) Enhancing the experience for tourists. 5) Setting time periods and reasonable prices. 3. Test what needs to be developed (pilot tour): 1) Prepare activities and practice on the tour guide process 2) Test using a pilot tour arrangement (Tourists must have knowledge and understanding of good agricultural tourism activities). 4. Review what needs to be developed. (Suggestions): 1) Use suggestions from analysis of strengths, weaknesses, opportunities and obstacles to develop marketing strategies. 2) Improve and develop appropriate programs and activities. Output: Guidelines for self-development based on existing potential, community participation for agro-tourism services, implement the recommendations of the travel program trial experts in decision-making and obtain programs and activities that are appropriate and in line with the needs of the community. 2) Improve and develop appropriate programs. Outcome: Create a participatory process from the community through training skills and develop community products to create added value and public relations channels via www.farmstaysakao.com, organize community-based activities or groups of villagers to develop agricultural wisdom, organize community tourism programs for 2 days

and 1 night and organize farm stay tourism according to the King's Philosophy.

VI. DISCUSSIONS

The first objective was to study the potential of the farm stay community according to the King's science. The results showed that the overall potential of the community in Sa Kaeo Province was high. Potential can be classified by aspect as follows: agrotourism management, followed by agrotourism support, agrotourism service and agrotourism attraction. Consistent with the research [12] studied the potential of agricultural tourism management in Chanthaburi province. The objectives of this study were to 1) survey agricultural tourist attractions. 2) Study the potential of agricultural tourist attractions 3) propose the standard of agricultural tourism attractions suitable for Chanthaburi Province and 4) propose guidelines for developing the potential of agricultural tourist attractions in Chanthaburi Province. The research process consisted of collecting data from spatial surveys, assessing the potential of agro-tourism sites, interviews and small group meetings and content analysis to propose guidelines for potential development of agricultural tourism sites in Chanthaburi province. The results of the study revealed that agro-tourism sites in Chanthaburi province had high potential for agro-tourism management and meet quality standards. The standard of agricultural tourist attractions suitable for Chanthaburi province consisted of managerial potential, support potential, service potential, attractive potential and value potential.

The second objective was to study the guidelines for the development of farm stay tourism according to the King's Philosophy. The results of the strategy development synthesis were: Active strategies include: increasing public relations channels both online and offline, development of activities to be a learning base for upgrading the potential of agrotourism, and the development of agro-tourism activities in accordance with the needs of tourists. Revised Strategies include developing and enhancing knowledge of product design and fabrication, developing and increasing marketing knowledge skills for the community, developing and increasing knowledge of community-based tourism management skills, developing and increasing skills for communicator and youth to have knowledge in agricultural tourism management, making road signs to promote tourist attractions both within the community and outside the community, standard development of tourism programs. Protective strategies include maintaining production standards, promoting knowledge and increasing product standards in the community. Passive strategies include the development of a participatory community-based tourism development plan,

and creating a farm stay tourism model according to the King's Philosophy by using a business model. Consistent with the research [13] who studied the management of agro-tourism community in San Highway Village, Mae Chan District, Chiang Rai Province found that the right strategy was: 1) Active strategy - the community should accelerate the improvement and development of community products in order to create a selling point and income for the community. 2) Protective strategies - The community should allocate new generations of people to learn and inherit work and should find new potential customers to be more self-reliant. 3) Passive strategies - Communities should pay more attention to planning because changes in government budgets or unusual events may result in reduced tourist arrivals.

The third objective was to study to create a farm stay tourism model according to the King's Philosophy. The results of the process analysis were as followed: Input: 1. Collecting, processing and analyzing data in the context of farm stay operations. 2. Study the community by survey method in the real area to consider the feasibility according to what needs to develop focusing on agro-tourism activities. 3. Test what needs to be developed (pilot tour) - 1) Prepare activities and practice on the tour guide process 2) Test using a pilot tour arrangement (Tourists must have knowledge and understanding of good agricultural tourism activities) 4. Review what needs to be developed according to recommendations. 1) Use suggestions from analysis of strengths, weaknesses, opportunities and obstacles to develop marketing strategies, along with self-development guidelines according to the potential for community participation in providing tourism services in agro-tourism model, use the recommendations from the experts to make a decision on the travel program, and obtain programs and activities that are appropriate and consistent with community needs. 2) Improve and develop appropriate programs. Outcome: Create a participatory process from the community through training skills and develop community products to create added value and public relations channels via www.farmstaysakaeo.com, organize community-based activities or groups of villagers to develop agricultural wisdom, organize community tourism programs for 2 days and 1 night and organize farm stay tourism according to the King's Philosophy. In Figure 6 (F), 8 communities or groups of villagers gathered to develop agricultural wisdom (40% of the assessors). In line with the research [14] studied on the management of cafe farms following the new agricultural theory of entrepreneurs in Phra Nakhon Si Ayutthaya Province, it was found that 1) Farm cafe operators managed systematically by linking the farm cafe's operating activities and basic knowledge of the new theory of agricultural management. 2) A successful approach to

managing a cafe farm following the new agricultural theory of entrepreneurship includes: 1. Entrepreneurs must be learning all the time. 2. Appropriate use of innovation for cafe farm management. 3. Linkage of production management within the farm and continuous marketing. 4. Financial management 5. Consideration of community, society and environment.

VII. RECOMMENDATIONS

1. Advocating for the values and policies of using the country's community-oriented products as a guideline for creating community-oriented products and tourism products that have quality standards and are accepted by the market
2. Standard development of farm stays tourism and reasonable pricing, as well as value creation and community storytelling through tourism
3. Development of modern marketing channels through online marketing materials.

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Developing of Students' Learning Achievement in Electronic and Electrical Circuit Course by Electric Circuit Practice

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Abstract— This research was aimed to develop students' learning achievement in electronic and electrical circuit by doing an electric circuit practicum. There were 10 laboratories for the third-year students, majoring Physics of the The Faculty of the Science and Technology at The Thepsatri Rajabat University, but only 10 laboratories to be practiced by following the real data of electronic and electric circuit and systematically analyzing the data using Proteus 8.0 program. This program was also able to simulate the circuit. The findings are that based on the university's evaluation systems, there were 9 students scored 80 to 100 or A (75%), while 3 students scored 75 to 79.99 or B+ (25%). Furthermore, there was the learning appraisal following the Subject's objectives, which was consisted of 4 topics, i.e. the course syllabus contents, the designed learning, the experiment, and the creating interaction. The appraisal would be on X⁻ and S.D. in 4 appraisal objectives

Keywords— Learning achievement; electronic and electrical circuits; Electric circuits practice Introduction

I. INTRODUCTION

Nowadays, the evolution of information technology and communication progress speedily, developing learning the information technology and communication of teenagers was important, developing learning the information technology and communication of students would be important of the nation's ready changing by managed education had to hold that the students could learn and improve themselves and the students were the most important, the managed learning process might support the students to develop themselves naturally and potentially. [1]

Electronic and Electrical Circuit course description Rectifier and various filters operating point. Parameter And important values are listed in the diode's manual. And transistors CB CE and CC transistors, transistors, load balancing, different types of applications and applications. Both digital and linear ICIC op amps work on the circuit. Diodes measurement and testing Differential filtering with filters using oscilloscope and multimeter, biasing circuit, transistors, ICs, various circuits, opamp amplifiers, frequency generators and amplifier circuits.

The electronic and electrical circuit course had both of theory and laboratory. Learning method in the previous using a conventional form, which was only basic interactive. Therefore, student did not understand how to do the

interactive process. Moreover, students could not analyze the electronic and electrical circuit. And it impacted the students' grade which categorized as in the middle.

The research was developed by the lecturer by using the simulated circuit as the exercises for the students to develop and improve their learning, and how to build the electronic and electrical circuit. The Proteus 8.0 program was valuable to simulate the designed exercises to the students. By changing the circuits model, this study aims to know the achievement and understanding of students on the simulated understanding, such as the electric resistance changing to make the electric lamp changed to the different ways, and the display of oscilloscope of DC to AC differently. To check those understandings, the was a final appraisal. [9]

To know the basic elements of the electrical circuits. To know the various types of electrical signals. To know and understand various laws of electrical circuits. To apply various theorems to solve the problems of electrical circuits and to interpret the results. To find the various parameters from electrical circuits. To determine the transient response in electrical circuits. To analyze the magnetic circuits. To sketch various types of electrical and magnetic circuits by Proteus 8.0 program

For the students who were not able to analyze the circuit, we used the Proteus 8.0 program to create and design the electric circuits in the simulated working circuit. Those students would learn the circuit functions and components, and they

were expected to explain all the functions and the inner components safely.

II. METHOD

This research was used the project-based learning in which learning management and project-based activities were student-centered pedagogy. It was involved dynamic classroom approach to possibly bring students acquired the deeper knowledge through an active exploration of real-world challenges. The students would learn by the group working process to bring about to the new learning results by following the project process, i.e. writing the project and its conclusions in the abstract. [2] [8]

The population of this research was the students of Physics Department, The Faculty of Science at Thepsatri Rajabhat University, who attended the electronic and electrical circuit course. The samples were purposively selected from the students that showed the low performing grade. There were 11 students was chosen as the samples of the research, consisted of 3 boys, and 8 girls aged ranged 20-21 years old. The tools created was the circuit designing simulation in Proteus 8.0 program which will be printed out on the papers, and used as the materials in the electronic and electrical circuit course. There were 15 laboratories and, only 10 laboratories matched with electronic and electrical circuit course.

TABLE 1. The criteria of the study are shown

Score	Grade	Symbol
80-100	4	A
75-79	3.5	B+
70-74	3	B
65-69	2.5	C+
60-64	2	C
55-59	1.5	D+
50-54	1	D
>50	0	F

The analysis of the statistics information of the assessment was analyzed as followed. [5]

1. Mean (\bar{X})

$$\bar{X} = \frac{\sum x}{n} \quad (1)$$

When \bar{X} was Mean of the point.
 $\sum x$ was the all conclusion of point.
 n was the size of samples.

2. Standard Deviation

$$S.D. = \frac{n\sum x^2 - (\sum x)^2}{n(n-1)} \quad (2)$$

When S.D. was Standard Deviation of the point.

n was the number of student in the samples.

$\sum x^2$ was the point conclusion in double of each students.

$(\sum x)^2$ was the double point conclusion each of students.

III. PRACTICE AND EXPERIMENTS

The conduction of the research was aimed at develop students' learning achievement in electronic and electrical circuit, by using Proteus 8.0 program [4]. The simulated program assembled the electronic and electric circuit course, there were 10 laboratories, so the laboratories would match to the electronic and electric circuit course as follows. [6] [7] [10]



FIGURE 1. Proteus 8.0 Program

Proteus is a single integrated application with ISIS, ARES and 3D Viewer modules appearing as tabbed modules. The program enables changes on the schematic to be reflected across PCB, BOM and Design Explorer in real time. Proteus stores the design (DSN), layout (LYT) and common database in a single project file (PDSPRJ).

TABLE 2. Practice training in Proteus 8.0

1.	Flashing circuit
2.	220 Volt AC Adapter for 12 Volt DC Power
3.	Transformer Power Supply
4.	PIC 16F627A
5.	5-volt power supply circuit
6.	Transistor circuit
7.	Closed Circuit Television
8.	Emitter Circuit
9.	Base Circuit
10	Darlington circuit

Therefore, the simulated test in the Proteus 8.0 program (FIGURE 2. and FIGURE 3) for answering the exercises

and to create the questionnaire matching with the exercises with four objectives. There were also four topics, the course syllabus contents, the designed learning, the experiment and the creating interaction as the instruments of the study.

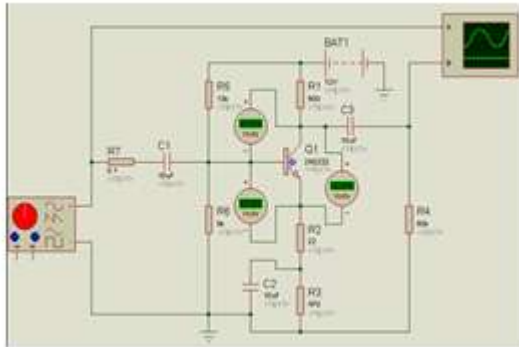


FIGURE 2. Emitter Circuit in program Proteus 8.0

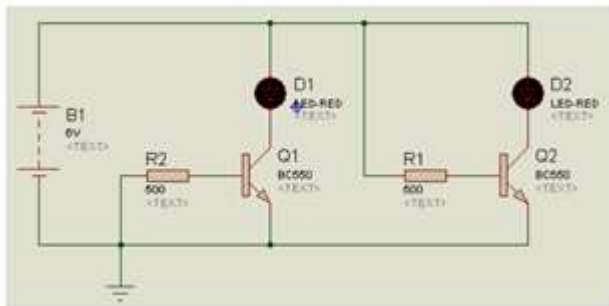


FIGURE 3. Transistor circuit in program Proteus 8.0

IV. RESEARCH RESULT

The appraisal result of students in the learning achievement development of the electronic and electric circuit by analyzing practice, using by Thepsatri Rajahbat University, district Lopburi, Lopburi ranking of samples followed the TABLE 3.

TABLE 3. Result

Grade	Score	Number of Student	%
A	80=>>	9	75
B+	75-79.99	3	25
B	70-74.99	0	0
C+	65-69.99	0	0
C	60-64.99	0	0
D+	55-59.99	0	0
D	50-54.99	0	0
F	0-49.99	0	0

Therefore, doing the appraisals collectedly to the created assignments by the 4 objectives, there were 4 topics, the course syllabus contents, the designed learning, the experiment and the creating interaction. Following the TABLE 4.

TABLE 4. Evaluation result of the questionnaire

Grade	Score	Number of Student	%
A	80=>>	9	75
B+	75-79.99	3	25
B	70-74.99	0	0
C+	65-69.99	0	0
C	60-64.99	0	0
D+	55-59.99	0	0
D	50-54.99	0	0
E	0-49.99	0	0

V. CONCLUSION

Following by the university's ranking of electronic and electric circuit by circuit analyzing, the electronic and electric circuit course, there were 11 students majoring Physics. The students evaluated before learning made more understanding of the topic of this course and the theory. They can do the final test and midterm successfully to made the learning achievement, the sample of the students passed the appraisal standard 100 % of Thepsatri Rajahbat University appraisal system and the created test could decrease time in more interactive, and the appraisal was followed by the 4 learning objectives in the very well level both of medians and standard deviation.

VI. ACKNOWLEDGEMENT

This exercise can be combined with a variety of other programs and can be an introductory course for interested students.

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Upgrading local food products for community businesses in Thailand

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Abstract— *The purpose of this research was to use Quality Function Deployment for outer package design in community businesses. The research was conducted by employing the mixed methods. The qualitative research method was used for in-depth interview with seven experts. The quantitative research was carried out by using the questionnaires to find the needs of customers. The sample size was 385 people. The sample requirements were then converted into the technical specification to create a House of Quality, along with the interpretation of results and design of the outer package of chili paste products.*

The results obtained from the qualitative study can be categorized into 3 groups: 1 design 2 material properties and 3 appearances of the package. The results of the quantitative research revealed the requirements of specific properties for outer package design. The material used for its manufacture was the double wall corrugated cardboard which was suitable for outer package.

Keywords— *Quality Function Deployment, Outer Package, Chili Paste*

I. INTRODUCTION

Valaya Alongkorn Rajabhat University under the Royal Patronage, Pathum Thani campus was assigned to enhance the efficiency of community in the area of Pathum Thani and Sa Kaeo provinces in Thailand. Therefore, the research team had provided various academic services for those community. The research team focused on educating about increasing income of communities in Pathum Thani province in order to generate income and have the sustainability of the community. The research team collaborated with the Industrial Technology Program, Faculty of Industrial Technology to survey the area within Pathum Thani province. Consequently, the research team found that farmer housewife group of Khlong Song Ruamjai, Pathum Thani province had the high potentiality and readiness to improve their efficiency. Currently, this farmer housewife group had a total of 23 group members (Khlong Luang District Agricultural Office, 2020) whose main occupations were farmer and self-employed. Furthermore, they also grew various types of mushrooms such as Bhutanese mushrooms, fairy mushrooms for selling to the markets. In addition, they also had an additional career in generating income for members by producing the products such as the tamarind chili paste, grilled fish chili paste, lotus seed chili paste, bamboo shoots, steamed bamboo shoots with curry

paste, and orange juice [1], [2]. The survey also found that the farmer housewife group has the famous products including chili paste, grilled fish chili paste, mushroom chili paste, lotus seed chili, tamarind paste and various types of chili paste. Each type of chili paste was recognized and awarded OTOP from Pathum Thani province and many other organizations. Their products were available for selling in both wholesale and retail trade. For retail trade of chili paste products, farmer housewife group had designed the package by using the glass and plastic bottles.

From Figure 1, it was found that when they sold the product, if one to five bottles of chili paste, they would put



Figure 1 shows that the award received and the current package of chili paste.

the chili paste bottles in a plastic bag for the buyer. If a set of six bottles, then they would use a cardboard box as the outer package as shown in Figure 1. From the interview with the members of farmer housewife group and buyers, the research team found that most buyers preferred to buy one to four bottles of chili paste at a time, so there was no external package for buyers. Addition, when bringing the products of the farmer housewife group to be sold with the same products in department stores or convenience stores, they faced the problems that many buyers would not be able to find the products of the farmer housewife group because of similar labels and brands and with the OTOP logo, which was a common logo. These could make the difficult for buyers to find the farmer housewife group products. From the obtained information, the research team also found that if the buyers bought a pack of six chili paste bottles, they could easily find them because the outer package was distinctive and different from the other brands. Therefore, the research team discovered the problem of packaging differentiation, and we had consulted the farmer housewife group with their findings. As a result, farmer housewife group would like to develop outer package to differentiate their products, and the products of the farmer housewife group can be recognized by buyers. Therefore, the research team has been interested in and applied Quality Function Deployment (QFD) theory to help design outer package for the product of the farmer housewife group in order to differentiate their product and easily recognize the farmer housewife group's products.

II. RESEARCH OBJECTIVES

The purpose of this study was to improve the outer package of chili paste which produced by the farmer housewife group of Khlong Song Ruamjai, Pathum Thani province using QFD technique.

III. LITERATURE REVIEW

Analysis of customer needs

House of Quality (HOQ) [3], [16], [17], [18] is defined as a tabular tool that shows the relationship between customer feedback in the sense of what features are needed in a product or service (Voice of Customer) to know the "What" of customer desires and then focus on what each customer needs. There are several methods for collecting customer feedback such as fill out the questionnaires, one-on-one interviews, focus group interviews, etc. These methods are used to assess the customer needs. After that, Voice of Customer requirements are translated into technical requirements or Substitute Quality Characteristics (SQC's). In House of quality [4] [19] [20] [21], as Figure 2 shows the components

of House of Quality, the research team needs to analyze and synthesize each component as follows.

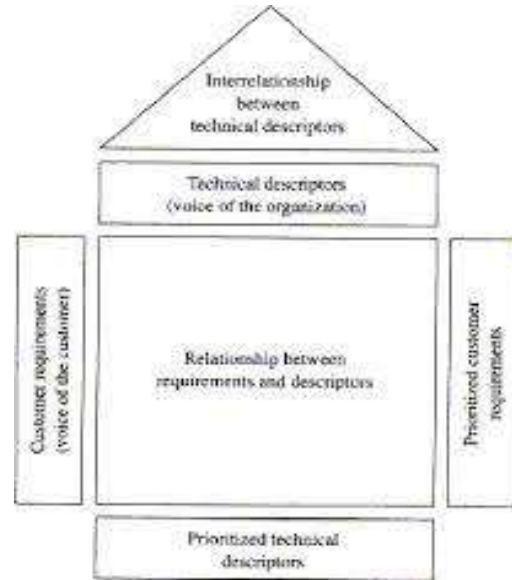


Figure 2 shows the composition of the House of Quality [5].

A) Left wall (Customer Requirement) refers to what the user can expect from the product.

B) Right wall (Prioritize Customer Requirement) means to prioritize what the user would like to (planning matrix) separated into categories such as user testing, rating and unique selling points, etc.

C) Ceiling (Technical Descriptors), or second class, are technical descriptor or voice of the organization that correspond to the product in terms of specification, condition, design and other engineering parameters.

D) Inside the room or the house, it shows the relationship between the customer's needs and the technical details or it can be said that it translates to the customer's needs into engineering specifications.

E) Roof (interrelationship between technical descriptors) is used to express the internal relationship between technical details by presenting the technical similarities and differences of the given details.

F) Floor room (Prioritized technical descriptors) or folk is a technical detail that is prioritized such as comparison with competitors, the rate of difficulty and the value of the aim.

IV. RESEARCH METHODS

The process was in accordance with the research framework as in Figure 3 represented the research framework.

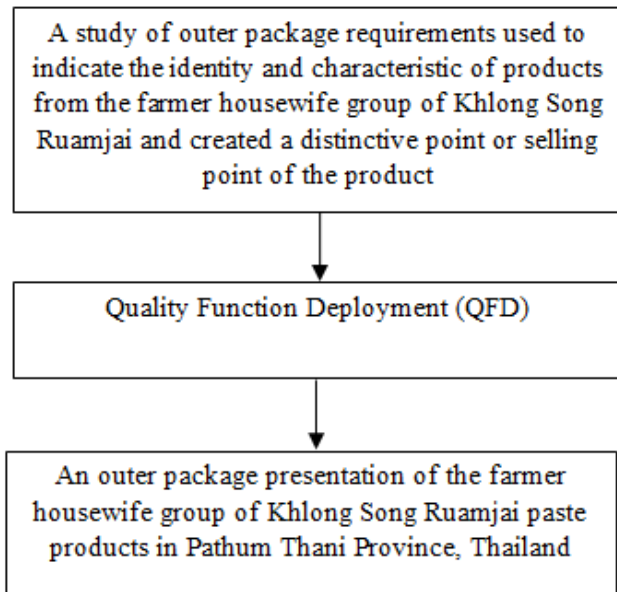


Figure 3 shows the research framework. The research process was as follows.

1. Determination of details for study design [6], [23], [24] was a research methodology with the following steps. Step 1 was to find customer requirement. This process was a qualitative research by collecting data using in-depth interviews. Selection of group representatives from farmer housewife members group consisted of chairman, secretary and member, representatives of customers who consumed chili paste and distributors. Contributors must be able to provide all the insights the research team needs. The purposive sampling method was used to obtain the number of informants as follows: three representatives of the farmer housewife group, two customer representatives and two distributors, totaling seven persons. These people identified the need for the outer package of the chili paste. After that all the requirements were gathered and then grouped and reorganized.
2. The R.C. Turner & L. Carlson concept [7] was used as a guide in the second step of the voice survey of consumer needs. There was a mixed method research process where customer demand or voice of the customer is arranged through a qualitative research tool, affinity diagram. Information is summarized into categories by selecting specific needs related to style, design, strengths and weaknesses for further application. In the quantitative research, data was collected using questionnaire tools to conveniently determine the significance score and the application of QFD technique and the study guidelines of Amonrat and Attakorn [8] were used as a guideline for constructing questionnaires. For this quantitative research,

data from small shop furniture buyers in Bangkok and its vicinity was studied. It was a survey of opinions towards the form of outer packaging design. The survey was selected from an unknown population. Therefore, the research team selected a population based on people who had bought pastes by distributing questionnaires online and through farmer housewife group stores and dealers. The population cohorts were determined according to Yamane's calculation table at a 95% confidence level, using the table values or use the formula to calculate as Equation 1.

$$n = N / (1 + Ne^2) \quad (1)$$

Let n is the minimum acceptable sample size.

N is the number of populations

e is an acceptable error.

The random sample had an acceptable error of 5%. The sample size was not less than 385 people. The research team collected the data of 400 people to obtain the complete information and prevent any errors in the data collection. Selection of sample groups for data collection using accidental selection was as follows:

- 1) The sample group, both male and female, aged 18 years and over because they had maturity in making decisions on purchasing products.

- 2) People who had purchased farmer housewife group chili paste products and cooperated in answering a questionnaire. Data analysis used questionnaire requirements to create questionnaires in the survey to determine the level of significance and each requirement. In the questionnaire, the scores were divided into 5 levels of importance and need and defined the meaning as follows.

5 - most important

4 - very important

3 - medium important

2 - less important

1 - not important

Since the data obtained from the questionnaire were selected based on the score scale, the most reliable way to calculate the mean was the geometric mean. The method of interpreting questionnaire results was based on the average according to the scoring criteria as follows:

Highest score - lowest score = $(5-1)/5=0.8$

4.21 - 5.00 Satisfaction and needs are at the highest level.

3.41 - 4.20 Satisfaction and needs are at a high level.

2.61 - 3.40 Satisfaction and needs are at a moderate level.

1.81 - 2.60 Satisfaction and needs are at a low level.

1.00 - 1.80 Satisfaction and needs are at the least.

Then the sample needs converted into technical requirement to build a House of Quality (HOQ) and used it for packaging design to best meet customer needs. Data could be compared with competitors to create a product's selling point by using

House of Quality as an analysis tool, as shown in Figure 3. In the construction of a correlation matrix, it was the process of defining the relationship between what the clientele needs and the representative of the quality characteristics by scoring the relationship of the requirements. Identifying numbers instead of relationships could be done using QFD. This time, the research team had determined the relationship values as follows:

Let @ = High correlation (5)

O = moderate correlation (3)

X = low correlation (1)

The correlation was done by taking the results obtained from the analysis of each metric and the results based on the needs used in response to the import demand and the level of importance for each of the needs used in the response. This showed how much each need could be met depending on the level of importance being metric [5]. The results were then used to design the outer packaging of the chili paste products of the farmer housewife group of Khlong Song Ruamjai, Pathum Thani Province. At this stage, qualitative research was conducted using focus group discussion. Participants analyzed in this process consisted of two experienced sales people who were distributors of various types of chili paste with at least five years of sales experience, two representatives of packaging designers for one person, product user representative and three representatives of the farmer housewife group of Khlong Song Ruamjai to summarize the patterns and issues and make final adjustments before forming the prototype packaging and taking it to the next step [9].

V. RESEARCH RESULTS

The results of the voice of customer survey after arranging customer needs and grouping those needs into categories based on brainstorming techniques from relevant parties could be categorized into three groups:

1 Design

2 Material properties

3 Appearance of the package

The details of the needs as in Figure 5 showed the details of the needs of each group. The details of customer needs of each group consisted of Group 1, "design" with 5 requirements: 1 The packaging pattern is beautiful 2 It is a packaging that can clearly see the product inside. 3 The packaging must show the value of ingredients and nutrients. 4 The packaging must clearly show the date of manufacture and expiration date. 5 The packaging must have a style that communicates with consumers, looks attractive and suitable as a souvenir. Group 2 "material properties" were demanding, including: 1. The packaging is lightweight. 2 The packaging is

easy to carry around. 3 Packaging is easy to transport in large quantities. Group 3, "appearance of the package", were demanding: 1. The packaging is tensile and does not easily break when hit with sharp objects. 2 The package can maintain its shape when it is in motion. 3. The package is sealed to prevent insects or animals from penetrating.

Direction of quality element development	
Technology limitations	
Design	1 The packaging is beautiful
	2 The packaging can clearly see the product inside.
	3 The packaging must show the value of the nutrients it contains
	4 The packaging must clearly show the expiration date.
	5 Packaging must be in a format that communicates with consumers
Material properties	6 Packaging is lightweight.
	7 Packaging is easy to carry around.
	8 Packaging is easy to transport in large quantities.
Appearance of the packaging	9 Packaging is resistant to tension and will not be easily torn
	10 The packaging is able to maintain the shape of the package
	11 Packaging is sealed. Prevent insects from penetrating the package
The importance of quality elements	
Quality element weight	

Figure 5 shows a detailed table about the in-depth requirements of the informant.

After that, all three groups of needs were put into questionnaires to determine the importance of each requirement. The results of the aggregated user group were correlated in the next step, with constraints on the design, workflows and prioritization of each requirement. Figure 6 shows the relationship between user needs and quality elements.

Figure 6 shows a table of relationships between user requirements and quality elements. It was found that there were four important factors used in the design:

1. Material flexibility
2. Patterns and text can be printed on the material.
3. Pattern and text design
4. Packaging dimensions

Based on the four factors that influenced the design, the research team took the key factors into consideration with the designers and farmer housewife group to draw up a draft of the outer packaging and select the materials used for the production. In this design, the farmer housewife group had a design requirement: the material used for the outer packaging requires a double-walled corrugate cardboard, E-flute, 1.0-1.8 mm.



Figure 7 shows the characteristics of the corrugation [10]. The KI type of light brown kraft paper was defined as the farmer housewife group type of corrugated cardboard, which was already used in the manufacture of the 6-bottle outer package and there were a lot of raw materials used in production. Most importantly, for the uniqueness of the same material, the existing corrugated cardboard was used. The farmer housewife group requirements for using corrugated raw materials were consistent with the key factors of the four studies. This was because, from the corrugated cardboard property testing of the Industrial Standards Institute [11], it could be concluded that corrugated cardboard had a material

elasticity that can withstand a pressure of at least 130N and did not result in damage to the internal packaging. Moreover, the properties of corrugated cardboard could also print patterns and texts beautifully and clearly. The distinctive properties of corrugated cardboard were thus helping to correct a key factor in the design of outer package of chili pastes. In the design process of the research team, brainstorming principles were used to develop outer package by incorporating essential factors into design requirements: pattern and text design. This corresponded to the properties of corrugated paper that patterns and text could be printed on the corrugated board without affecting the packaging properties. The results of the test of the corrugation pressure resistance was averaged at 891kg / 33.2cm² (Flat Crush). Process index value Short-term capability (Cpk) was 0.63. According to Alongkot's qualification tests [12] for corrugated cardboard specifications and properties, research team and designers were able to develop two types of outer package as shown in Figure 8 and Figure 9.

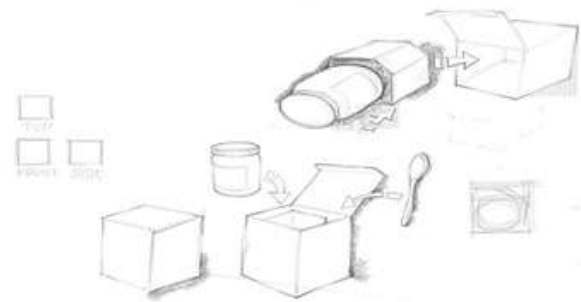


Figure 8 shows a packaging prototype in pattern 1.



Figure 9 shows a packaging prototype in pattern 2. The farmer housewife group used the main trademark as a strand feature. Figure 10 shows the farmer housewife group's trademark.



Figure 10 shows an example of a brand or trademark. In addition, the research team had designed a sample of the exterior design to be a prototype for the development



Figure 10 shows an example of the outer package pattern of chili paste product.

From the design of the outer package of the chili paste, the research team and designers had selected the colors and dimensions of the package and used to make them as a model for the farmer housewife group to consider. The farmer housewife group did not allow publishing of color, dimension and prototype designs due to under development. The research team was therefore unable to present the colors, dimensions and prototypes of package. The research team analyzed the two packaging styles by defining the evaluation criteria for the weight and significance of the packaging designs as shown in Table 1.

Table 1 shows the weighting and significance values of the requirements.

Requirements of selection of packaging forms	Significance weight (%)
Cost price of packaging when manufacturing	20
The packaging can keep the condition of the product inside safe.	30

Requirements of selection of packaging forms	Significance weight (%)
The package can maintain its shape when it is transported or moved.	30
Packaging is easy to transport in bulk.	20

Based on the farmer housewife group representative scoring criteria, research team and designers concluded that the choice of packaging as pattern1 because this pattern was of the highest importance. Figure 11 illustrated a scoring table on the two patterns of packaging concept.

Selection	Weight	Production			
		Type 1		Type 2	
		Rating	Weighted Score	Rating	Weighted Score
1 Cost price of packaging when manufacturing	20%	5	1.0	3	0.6
2 The packaging can keep the product inside safe.	30%	4	1.2	4	1.2
3 Packaging can maintain its shape when it is transported or moved.	30%	5	1.5	4	1.2
4 packaging is easy to transport in bulk	20%	5	1.0	2	0.4
Total Score Rank	100%	19	4.7	13	3.4
		Selection		No	

Figure 11 shows the concept scoring table.

A joint analysis of the research team, designers and farmer housewife group found that the pattern 1 was suitable as an outer package of chili paste.

VI. CONCLUSION AND DISCUSSIONS

From the new product development phase using the QFD process, the final product was analyzed by a group of product design specialists, research team and representatives of farmer housewife group to figure out the selling points and points that should fix the package before they are brought to market. According to a joint analysis, it concluded that the developed packaging had a strong potential to increase sales of farmer housewife group's chili paste products in terms of differentiation in packaging which makes it easy for consumers to separate products. In addition to the expert analyzes, the research team found that their research was consistent with [13], [14], [15], [25], [26] with a similar survey process but Charcrit [5] did not survey competitors. This was so because it was the production of potted plants for the community, so there was no need for competitor components. However, the results were consistent, that is, it made users more satisfied with the newly developed product.

Therefore, the result of designing new package was more distinctive than other products, meets customer needs and could create a unique identity of housewife group chili paste as a selling point for chili paste. In addition, the application of QFD technique to farmer housewife group had resulted in improved and improved packaging design processes and reduced product design time. It could also help to build a prototype of the packaging design process for other new product designs.

The suggestion of this research was found that the data collection was only collected from consumers in the Pathum Thani area, therefore lacking diversity and still unable to lead to the desired results at the national level. If further development was carried out, data from all over the country and abroad must be collected in order to produce results that were international and acceptable to both domestic and international.

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Using Augmented Reality (AR) for Poy Sang Long Buddhist Ordination, Thai Yai Identity in Mae Hong Son province

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Abstract— This study aimed to develop Augmented Reality technology to present the Tai Yai ethnic identity through the Poy Sang Long ceremony in Mae Hong Son Province. The Poy Sang Long ceremony or Buddhist ordination of the Shan people is to ordain a novice in Buddhism. The use of reality technology supports access to information and learning related to the Poi Sang Lang tradition of the Tai Yai people. Traditional forms of media accessibility problems are often represented through illustrated posters with large numbers of characters. Much of this information is contained in regular documents or pamphlets at various tourist attractions or exhibitions. When tourists or interested people read it, they find it uninteresting. Since the presentation of information in such formats cannot be seen in terms of dimensions and animations, it lacks the visual enjoyment of accessing the traditions of beauty and faith. This can be solved by using smart technology and information. Therefore, application development is essential to accessing information through augmented reality (AR) technology that can be used on smartphones, which can be displayed in the form of 3D objects, video and audio. Important tradition-related information gives users access to various stories and tools for learning about the Poy Sang Long ceremony.

Keywords— Augmented Reality; 3dimension; Poy Sang Long Buddhist Ordination; Smartphone; Tai Yai ethnic in Mae Hong Son province

I. INTRODUCTION

The Tai Yai people now live in many countries such as Burma. The Tai Yai people live in the area of the Tai Yai state (Shan State). Thailand has immigrants to make a living in Mae Hong Son, Chiang Rai and Chiang Mai, but few have recently immigrated. The Shan lived in the plains, rivers and valleys. Each valley is often named as a village-level community. The life of the Tai Yai people was tied to the fields, which involved crops such as rice, vegetables, beans, tobacco leaves, watermelons and other biennial crops. Their lives are defined by the seasons that correspond to the lifestyles of work, practice, rituals and religious traditions throughout the year. Geography, residence, traditional beliefs, rituals influenced by Buddhism and belief in spirits, the life of the Tai Yai people does not differ from the other Tai people in the north. Tai Yai is a Buddhist who is extremely devoted to Buddhism [7]. Due to the changing times, the way of life and the number of births is decreasing, so that people who will inherit Poy Sang Long tradition have gradually decreased from the local area.

Ordination is an important tradition of the Tai Yai people, most of them prefer to ordain a monk since the age of 12. Before ordination, parents have to take their children to the abbot in order to practice reading, learn how to ordain and have to memorize the Naga and blessings. When parents see that their child has the knowledge that they can become ordained, they set up an event, usually in March, April, and May, and scheduled for 3-5 days. The Naga ordination ceremony in Tai Yai language is called "Poy Sang Long". Poy Sang Long is a ceremony to celebrate the ordination of novice in Buddhism of Thai people who are of large Tai. It is often found in Mae Hong Son Province and in some districts of Chiang Mai Province. "Sang" means a novice. Long or "Alon" means the heir. From the legend that the Tai people have inherited about the origin of the Poy Sang Long tradition, that is, ordination as a novice is for the study of Buddhism and as a substitute for the merit of the parents. This was based on Buddhist history when Princess Pimpa Yasothara appointed Rahul to ask for the throne from the Buddha but the Gautama Buddha bestowed noble wealth, that is, Rahul was ordained and counted as the first novice of Buddhism. Another legend was based on the Buddha's history when Prince Siddhattha, who flourished with wealth but gave

up his wealth to seek the path of happiness. Both of these legends were traditions that the Shan people hold. The Poy Sang Long tradition is an important tradition of the Tai Yai people. In families with sons look forward to joining this tradition. Due to the belief that the blessings of this ordination will bring parents to heaven, Poy Sang Long is therefore a great and very happy ritual. This may be a strategy for children to become ordained and appreciate Buddhist principles during the holidays [9].

Based on the above information, the researcher aims to develop technology media to support access to information and learning related to the Poy Sang Long tradition in order to promote publicity to local people as well as the general public. The problem of accessing information in the traditional form is the inability to see in dimensions and the animation, thus causing a lack of visual enjoyment. We can resolve the access to ancient and complex traditions by making wise use of advances in technology and information. The use of virtual reality (AR) technology that can be used on smartphones will be more convenient and a tool for learning the Poy Sang Long traditions of the Shan people.

Nowadays, augmented reality (AR) is the utilization of information technology that can attract society. AR is defined as the technology which combines two-dimensional or three-dimensional virtual objects into the real three-dimensional environment and then projects those virtual objects in real time. AR is the implementation of virtual objects into reality, whether they are 2 dimensional objects or 3 dimensional objects. Rapid improvement of AR has been applied in many aspects of life. [2] and AR technology has recently been used in several fields, for instance medicine, education, and simulated training, [13] Especially tourism sector by using augmented reality can be alternative media for promoting tourism object attractively for tourists. [1]

Augmented Reality technology (AR) has been continuously evolving since 2004. The integration between the reality and the one that is generated by the computer is performed through software processing and transmission of information across devices in text, graphics and frame-by-frame 3D shapes. Nowadays, it is applied to smart phone technology to provide a virtual form of information that gives the user a different experience. AR information systems help tourists to gain important information and knowledge about tourism objects, as much as giving new experience and entertaining users at the same time [5]

Formally, an AR system is defined as having the following features [6] (a) ability to combine real and virtual objects in a real environment, (b) ability to register (align) real and virtual objects with each other, and (c) ability to run interactively, in three dimensions, and in real time. With AR, information

about the history and its objects can be overlaid on the real world in order to enhance the Receiver's perception of reality. By using The Vuforia platform. Because Vuforia platform uses superior, stable, and efficient computer vision-based image recognition technique and provides several features, enabling capability of mobile apps and frees developers from technical limitations. [14]

This research presented the ethnic identity of the Tai Yai people in Mae Hong Son Province through the Poy Sang Long tradition (ordination ceremony) which was regarded as an important tradition of the Tai Yai people and was a tradition that has been practiced for a long time, especially experiences that could not be seen much today or very little due to the lower birth rate of children. Visitors could not be seen without visiting during the festival. The relocation of rural people to the capital communities gradually faded the traditions that had been passed down. Augmented Reality technology (AR) was used to present stories through real time visualizations. This was to develop media presenting information on Tai Yai national identity in the form of graphics, video, sound effect and 2D and 3D animation and applied to educate youth, local people, tourists and interested people and could be easily accessed via Smart Phone.

II. RESEARCH OBJECTIVES

1. To uphold the arts and culture in the Poy Sang Long tradition of the Tai Yai ethnicity in Mae Hong Son Province
2. To develop media that show the identity of the Tai Yai ethnic group in Mae Hong Son Province through the Poy Sang Long tradition using Augmented Reality technology
3. To study the effect of using Augmented Technology Reality (AR) for Poy Sang Long Buddhist Ordination, Thai Yai Identity in Mae Hong Son province

III. LITERATURE REVIEW

Until recently, Virtual Reality (VR) technologies were one of the most outstanding technologies. The basic idea was the total immersion of the user in a virtual world generated by a computer. Although this concept is currently one of the most popular with multiple application domains, the main disadvantage of VR is that there is no relationship between the user and the real world. Therefore, Augmented Reality technologies are becoming increasingly popular, not only among the scientific community but also for the general public.

Augmented Reality is a variation of Virtual Reality [3]. Compared with Virtual Reality, Augmented Reality enhances the real world instead of replacing it. The user can view the real world enhanced with additional 3D graphics superimposed to his/her field of view. The possibility of

combining real and virtual objects will allow a huge amount of applications.

How AR is different from VR

The term virtual reality is defined as “computer-generated, interactive, three-dimensional environment in which a person is immersed”. Augmented reality allows the real time blending of the digital information processed by a computer with information coming from the real world by means of suitable computer interfaces. [4]

There is a clear difference between the concept of virtual reality and augmented reality that can be explained with the help of Paul Milgram and Fumio Kishino’s Reality – Virtuality Continuum as in figure 1. [8]

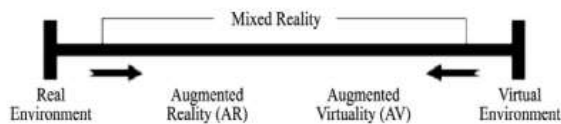


Figure 1: Research Methodology

The real world and a totally virtual environment are at the two ends of this continuum with the middle region called Mixed Reality. Augmented reality lies near the real-world end of the spectrum with the predominate perception being the real world augmented by computer generated data. Augmented virtuality is a term created by Milgram to identify systems that are mostly synthetic with some real world imagery added, such as texture mapping video on virtual objects.

As explained by Milgram, virtual reality completely immerses the users in a virtual environment wherein he / she cannot see the real world around him. This could be like; the user would generally wear a glass and once the applications starts he / she could feel like he is in a fairy world, so that he cannot sense what is going around him in reality. Whereas AR on other hand, even though the user would need some displaying device like computer / smart phone / special glasses / Head mounted displays, he could see the virtual world being overlaid on the real world. So he / she could be aware of both the world.

How AR works

AR system consists of three simple steps: Recognition, Tracking, and Mix. In recognition any image, object, face, a body or space is recognized on which virtual object will be superimposed. During tracking real-time localization in space of the image, object face, a body or space is performed and finally media in the form of video, 3D, 2D, text, etc are superimposed over it.

Marker-based AR Systems uses physical-world symbols as a reference point for computer graphics to be overlaid. In this

system camera continuously snapshots the target object and process the image to estimate the position, orientation and movement of the visualization display with respect to the target object. For example, a 2-dimensional printed marker is placed in front of a webcam. The computer then interprets this symbol to overlay an on-screen graphic as if it were directly on top of the marker in the physical world. Lighting and focus related problems limit the performance of AR services using this system.

Marker-less AR Systems uses a combination of an electronic devices’ accelerometer, compass and location data (GPS) to determine the position in the physical world, which way it is pointing and on which axis the device is operating. This location data can then be compared to a database to determine what the device is looking at, and thus allows computer data/graphics to be displayed on-screen. This technological approach has given rise to ‘mobile augmented reality’, denoting use of the technology with devices such as Smartphone and tablets. And the types of AR tracking are Fiducial Marker Based Tracking, Hybrid Based Tracking, Modeled Based Tracking, Natural Feature Tracking. [4]

IV. AUGMENTED REALITY SDK

Augmented Reality SDK facilitates many components within the AR application: AR recognition, AR tracking and AR content rendering. The recognition component works as the brain of the AR app. The tracking component can be stated as the eyes of the AR experience, and the content rendering is simply imaginative virtual objects and scenes on the real time information. An array of tools is provided to developers through SDK, required to recognize, track and render AR application in the most efficient manner. Augmented Reality SDKs can be organized in these broad categories: Geo-located AR Browsers, Marker based, Natural Feature Tracking

AR Browser SDKs allow users to create geo-located augmented reality applications using the GPS and IMU available on today’s mobile and wearable devices. Marker based SDKs employ special images, markers, to create augmented reality experiences. Natural Feature Tracking SDKs rely on the features that are actually present in the environment to perform the augmentation by tracking planar images or based on a SLAM (Simultaneous Location and Mapping) approach.

Vuforia

The Vuforia platform uses superior, stable, and efficient computer vision-based image recognition technique and provides several features, enabling capability of mobile apps and frees developers from technical limitations [14]

Vuforia platform consists of different components like Target Management System available on the developer portal (Target Manager), Cloud Target Database and Device Target Database and Vuforia engine. A developer simply uploads the input image for the target that he wants to track. The target resources are then accessed by the mobile app either through cloud link or directly from mobile app local storage.

A Vuforia SDK-based AR application consists of Camera which capture frame and pass contents to the tracker, Image Converter simply converts image taken by camera to a format suitable for OpenGL ES rendering and for internal tracking, Tracker which can load and activate multiple dataset at same time which basically contains the computer vision algorithms that detect and track real-world objects in camera video frames, Video Background Renderer to render camera image stored in the state object, Application Code which for newly detected targets query the state object which results in updating of application logic with new input data and rendering the augmented graphics overlay, Device Database to store marker targets in device itself and lastly cloud database which stores the target in the cloud. SDK supports both native development for iOS and Android, while also enabling the development of AR applications in Unity that are easily portable to both platforms.

The Vuforia SDK supports different types of targets, both 2D and 3D, including multi-target configurations, cylinder targets to track images on a cylindrical surface, marker less image targets, frame markers and cloud recognition targets to track 1 million targets simultaneously. The SDK provides features like localized occlusion detections using virtual buttons, image target selection in real time and has capability to reconfigure and create target sets depending on the scenario. It also support text target to recognize and track words. Some Features

- Provide faster local detection of targets with capacity of tracking 5 targets simultaneously.
- Efficient tracking in low light conditions and even though target is covered partially.
- Extended tracking capabilities, which enable app to keep tracking targets and helps maintain a consistent reference for augmentations of object even when the targets are no longer visible in real time camera view.

V. RESEARCH METHODS

In this study, the researchers applied the concept of interactive perception with the integration of AR technology to promote the identity of the Tai Yai ethnic group through the Poy Sang Long ceremony in Mae Hong Son Province. This concept was applied to research work related to the use of media and to promote awareness of the target audience more

effectively. These six phases consisted of literature review, data collection, data analysis, design, measurement, evaluation as well as final design. The results of the measurements were analyzed and developed for the design flaws and data access of the Poy Sang Long tradition to provide quality and diversity of media.

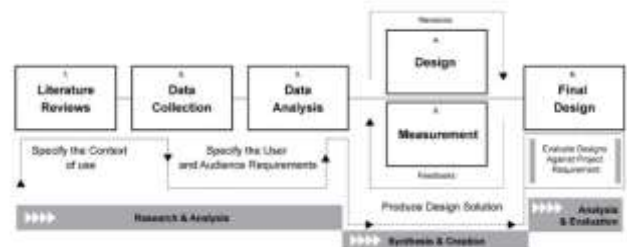


Figure 2: Research Methodology

Phase 1: Literature reviewed purposively focusing on the identity of the Tai Yai ethnic group through the Poy Sang Long ceremony in Mae Hong Son Province and the development of AR technology, a design theory that emphasizes perception of interactive media.

Phase 2: Data Collection - The researcher collected data from the study in the textbooks to find information on the history of the Tai Yai ethnic group, including the legend of the Poy Sang Long tradition. The data was collected from interviews with knowledgeable villagers, wisdom teachers, community leaders and people in Mae Hong Son Province.

Phase 3: Data Analysis - During the pre-operation stages, various techniques were used: 1) data analysis and content analysis 2) typological analysis 3) frequency analysis and 4) tri angle analysis. This was to synthesize all the information from phase1 to generate key concepts for AR media design.

Phase 4: Design - Analysis of findings from previous steps to define AR media concept and character design. At this stage, modeling and presentation prerequisites were planned for further evaluation of applications.

Phase 5: Measurement - Experts assessed the quality of AR media and the feasibility of being tested on a sample of youth volunteers in Mae Hong Son Province by measuring media satisfaction and presenting the results as a mean.

Phase 6: Final Design - Final edits in AR media based on expert proposals and sample groups before the actual use.

Population and Sample Group

The sample group for assessing the suitability of AR technology presented the identity of the Tai Yai ethnic group through the Poy Sang Long tradition in Mae Hong Son Province. It had been used purposive sampling as follows.

- 1) Academic: Masters of history and ethnic groups.
- 2) 30 youth volunteers interested in Poy Sang Long tradition
- 3) 5 media design experts

VI. RESEARCH RESULTS

Composition of literature review, data collection, data analysis, design, measurement, and final design allowed researchers to gain broader insights through audience brainstorming and the use of technology. They want awareness with real work and user interaction. Above all, it can be used and accessible to all users, which can be explained as follows.

Pre-Production Data Analysis

From the data collection and analysis in Phase 1, AR technology presented the identity of the Tai Yai ethnic group through the Poy Sang Long ceremony in Mae Hong Son Province. It could be used through an Android smartphone and used as a learning tool to allow users to study the legend of Poy Sang Long, rituals and details. In summary, the structure of AR media and its content was as follows.

2.1 Platform Poy Sang LongAR worked with a Smartphone or Tablet in the Android operating system. Smartphones were devices that can be carried anywhere, mobility, fast wireless data connections and a camera for capturing images or symbols to transmit information to the data processor, thus making users more convenient because most people have smartphones already.

2.2 Vuforia Library or SDK (Software Development Kit) was used as a supporter of AR media for use with Android phones as shown in Figure 1. Vuforia analyzed images using a marker detector and generated information such as text, video, 3D objects or in-camera animations from markers detected by the Vuforia API.

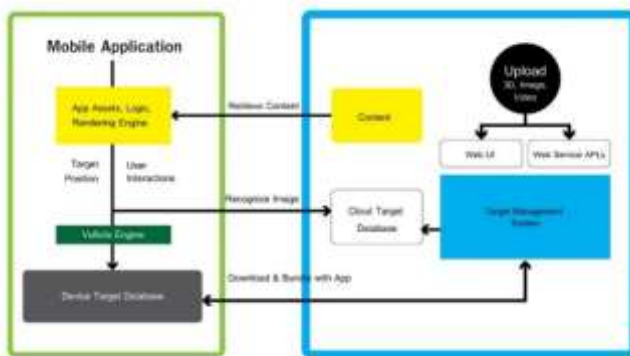


Figure 3: Vuforia Structure

2.3 Overall, the system used the pictograms installed at the information point. When interested people or tourists take their smartphones with the camera on and capture the symbols, then a 3D object would appear as a character with animation to tell the ritual of the Poy Sang Long tradition with

background music. It was also possible to show traditional 2D video and animation.



Figure 4: Platform Poi Sang LongAR

User could interact with Platform Poy Sang LongAR by selecting an image on the touch screen. Information was displayed as an add-on and could be seen on the smartphone screen. The displayed information may be a 3D object or a video depending on the parts of the brochure scanned by the camera.

2.4. The development of the application design was shown as a whole flowchart of creating this AR app starting with Character's design preparation, 2D Animation, Video and Information marker 3D print. The data was then collected by Vuforia and displayed on a smartphone as shown in Figure 3.

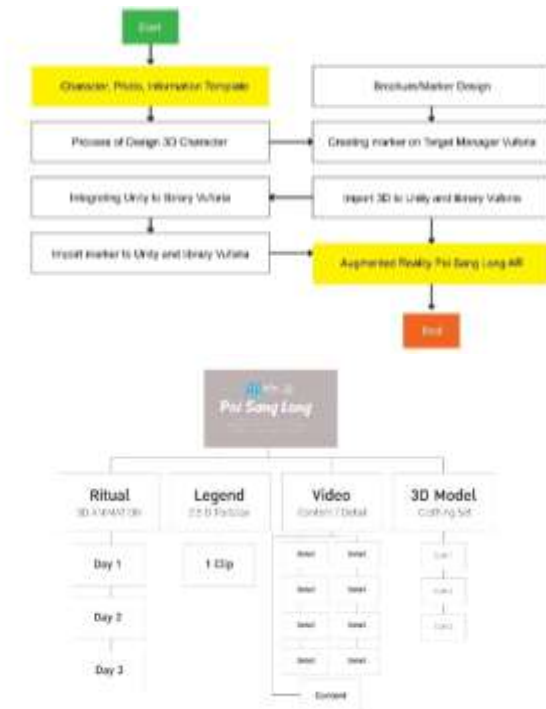


Figure 5: Development flowchart of Poi Sang LongAR

2.5. The design in this section discussed the creation of the Poy Sang long AR application, including the steps to create a 3D object model, a video of the marker creation and merging 3D objects in Unity 3D applications. The contents of the app included the Poy Sang Long AR app that connected to ceremonial information, legends, video presentations and character identification.

A. Rituals: Poy Sang Long tradition were usually held over three days: 1) On the first day of “Sang Long Reception Day”, in the morning children would be brought to the temple and dressed in Sang Long attire for 5 precepts. 2) The second day “Krua Ru Parade Day” or offering given as alms parade would be along the major roads leading to the temple. 3) The third day, “Khamsang Day” was the day that Sang Long is taken to ordain as a novice at the temple. When the formal conclusion was reached, the character design was drawn from 2D to 3D using 3D modeling software. Although it was a historical reference design, it had a modern application, choosing a unique feature that adorns the Poy Sang Lonb attire. The main character, s, was the symbol for the AR media and the daily ceremonies.



Figure 6: The Design Flow to Character 3D

B. Legend: 2D animation was a presentation of the legends of the Poy Sang Long tradition, with reference to the influential legends that have been passed down to the present day. According to a search for information on the legend of the Poy Sang Long tradition, it was found that, there were 3 legends mentioned, which the author had put forward to present only one of the most consistent myths and was considered an imaginative belief combined with a belief based on the history of the Buddha. The 2D image design could be created by drawing in Adobe Photoshop using coloring from Bruch Tools and moving the resulting image with an editing program with voice-over and subtitles.



Figure 7: 2D animation of the Poy Sang Long legend

C. Video of the Poy Sang Long tradition: Videos created using video editing software. This video presented the detailed information that would help understand the ritual and reflect its meaning by recognizing the identity of the Tai Yai people through the Poy Sang Long tradition. There will be an emphasis on the lighting, composition and gesture of the actors, which will not contain any dialogue of the characters, but only voice narration to describe the details within the image.



Figure 8: Animation of the Poy Sang Long legend

D. Still-life: Here it was to use the camera to shoot the subject, which appeared in different types of outfits, it may be seen how the ordinance wears the dress in everyday life.

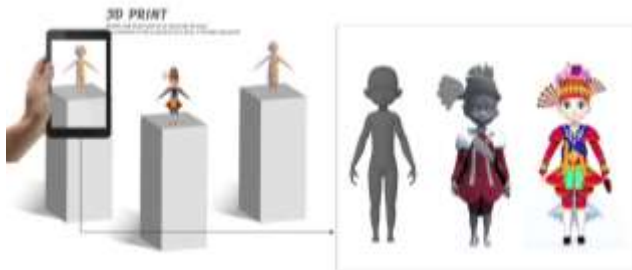


Figure 9: Using Augmented Reality (AR) for Model figure
E. Designing information labels using image editing software: It was designed in a board-mounted design with an image marker for using the camera to scan images to appear as AR. Therefore, the supplementary object shown in Figure 8 and Figure 9 were a schematic showing the resulting data.



Figure 10: Designing information labels

Poy Sang Long AR was designed from a simulation of Poy Sang Long tradition. It was a presentation of ceremonies, legends and details, as well as interactive and character representations, which enabled users to understand and promoted the continuation of the Poy Sang Tradition. The elaborate design showed the way of life of the Tai Yai people, with sound effects for different situations and music changes. The overview of the medium shown in Figure 2 suggested that implementation could interact with the user in all areas and created diversity in terms of both 2D animation and 3D animation.





Figure 11: Poy Sang LongAR Develop

The AR design aimed to use AR technology learning files to present the identity of the Tai Yai ethnic group through the Poy Sang Long ceremony in Mae Hong Son Province. Therefore, the user could access the content of various traditions.

Poy Sang LongAR Prototype Measurement

Table 1: Mean and Standard Deviation from Specialists' Assessment on **Poy Sang LongAR** Prototype

AR Components	Poi Sang LongAR Quality			Satisfaction		
	\bar{x}	SD	Level	\bar{x}	SD	Level
1. Content	4.03	0.65	Good	4.24	0.46	High
2. Design	3.87	0.51	Good	4.31	0.67	High
3. User's interface	3.70	0.48	Good	4.61	0.53	Highest
Total	3.87	0.54	Good	4.40	0.52	High

From Table 1, the specialists' evaluation on the Poi Sang LongAR prototype showed that the overall quality was good (\bar{x} = 3.87, SD = 0.54). When separately considering each component, AR content had good quality and was rated with the highest mean score (\bar{x} = 4.03, SD = 0.65). Similarly, the users' overall satisfaction toward the Poy Sang LongAR prototype was very high (\bar{x} = 4.40, SD = 0.52). The user's interface was the most satisfactory (\bar{x} = 4.61, SD = 0.53).

VII. DISCUSSIONS

Adoption could face a number of challenges and limitations. Technically, web design and approaches to facilitate the

presentation of Poy Sang Long traditions were part of some work or the operation of AR that mediated different profiles and visualizations was rather time consuming. In terms of producing media that must be accurate and attractive to the users for the most effective development, the evaluation indicated that users would like to had more appropriate access to information related to the presentation of custom information such as for accessing information and displaying the results quickly. In addition, the ability to pause stories or data when a marker leaves position, it should be clearly identified to the user between the object's position and the use of AR.

It was also worth exploring a new concept file of what was known as data persistence. The idea was to shift the AR-related interaction principle from object to content / context so that information did not disappear if the device was no longer pointing at the object. Since we used 3D models of physical objects as references in virtual space files, when the user dropped the device, we could present 2D and 3D data without background video in a continuous, contextual and informative manner.

VIII. CONCLUSION

According to the analysis and testing to study the work of AR media and presenting the identity of the Tai Yai ethnic group through the Poy Sang Long ceremony in Mae Hong Son Province, some conclusions were made as follows: education on the use of AR technology for convenient access to information and providing new experiences for tourists and interested people had provided information about the Poy Sang Long tradition. This was the use of the detection mark through the program to show the object in 3D, thus allowing the user to understand the ritual of Poy Sang Long, access to information about the legend through 2D animation and the ability to display video on a predetermined area. This AR-based technology could be optimized for design and could combine virtual objects with real-world environments in real time. In order to use this technology, the user had to take a smartphone to take a picture suitable for the distance and focus of the camera with the designated mark or subject.

According to Poy Sang Long AR's quality assessment, it was rated very high and the user satisfaction was very high. In the information about the analysis of user learning results, it is found that it provided a better knowledge of the ceremonies. Additionally, they could learn the traditions for themselves, which had an outstanding variety of presentations through AR technology.

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The Construction and Efficiency Evaluation of the Instructional Packages on Pneumatics Control System by using PLC

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Abstract—The objective of this research is to construct and Efficiency Evaluated of the instructional packages on pneumatics control by using PLC. The researcher has used the constructed instructional package to test with the purposive sampling group of 22 people who are the 4th year, student in mechanical engineering Faculty of Industrial Education at Rajamangala University of Technology Suvarnabhumi. The experimental process was done by using pre-test to test their basic knowledge, and then teaching them with instructional package. During the learning process, they had to do the exercises and practice of experiment. After finishing each job topic, they were tested theory and practical again. The exercises score, post-test, lap sheet score and practical test were calculated in order to measure the efficiency of the instructional package.

The results showed that the instructional package had the theoretical efficiency 84.39/80.15 and the practical efficiency of 85.23/82.73 which was higher than the expected criteria at 80/80.

Keywords— instructional package, pneumatics, PLC

I. INTRODUCTION

The National Education Development Plan (2017–2036) aims to build the expertise and excellence of educational institutions in the production and development of manpower to meet the needs of the labor market and national development including the dynamic challenges of the 21st century world [1]. According to the Thailand 4.0 policy, human development is an important factor that the government prioritizes. This is to strengthen Thai people's readiness to learn endlessly and to develop their creativity and potential to support new information technology and innovations. However, the major weakness of Thailand is the lack of sufficient skills and expertise [2].

Faculty of Industrial Education, Rajamangala University of Technology Suvarnabhumi aims to produce qualified graduates, professional teachers and technologists with the development of manpower in accordance with the needs of the country. Professional and technologically advanced education focuses on the practice and identity of students to become practical graduates to meet the demands of the labor market and national development [3]. Therefore, the Bachelor of Industrial Education program must develop the curriculum

in accordance with the changing innovations and technologies to provide graduates with competitiveness in the labor market and the ability to meet the needs of entrepreneurs and the economic needs of the country. There is a focus on producing professional teachers because when they graduate, they will go to careers as teachers, professional advisors in schools or trainers in the workplace. A professor is a person who provides knowledge and guidance so the recipient can use it for their careers. Importantly, it is part of the country's development towards stability in terms of economy, society and culture. This course aims to have the ability to effectively transfer professional knowledge to learners and industrial personnel [4].

However, Applied Hydraulics and Pneumatics is designated as one of the subjects in the Bachelor of Industrial Education, Mechanical Engineering Program. The course description includes the study of hydraulics and pneumatics and electrical components and equipment as control signals along with a study on how it works and functional analysis. The circuit design is connected to a computer or programmable logic controller, etc. From the study of teaching and learning management in such courses, it was found that most of the instructors used the theoretical teaching method and applied the theory they have learned to analyze, design the circuit and test the operation using FluidSim program. After that, an

experiment was made to connect the designed circuit in the workshop to confirm that whether the student's thinking and design results can be applied in practice according to the specified conditions or not. The study also found that students were able to learn and workshop on the basics of pneumatics and hydraulics and electrical control. For the pneumatic control system with PLC found that the learners did not understand the working principle of the control system and also unable to program commands to control the interaction with the device according to the specified conditions but control commands can be programmed only in basic commands. The students were asked the reason for the lack of understanding of the matter, found that students who study in Industrial Education, Mechanical Engineering graduated with a vocational certificate (vocational certificate) in the field of automotive mechanics and high school. Therefore, students lacked the basic knowledge of electrical control and had never learned PLC commands before, they did not understand the application of commands for controlling the operation of equipment as well as lack of media used in teaching and learning. Consistent with Suchitra, C. [5] who encountered problems in teaching and learning management in industrial control systems in the sense that lack of basic knowledge of learners prevents them from understanding the working principles of control systems, thus making them unable to design and write industrial control programs. There was also a lack of teaching materials to create a situation for students to experience and see the nature of work clearly. However, PLC control was a technology used to control the operation of machines and equipment. Mechanical engineering students needed to learn and be able to program commands to control the operation of machines and equipment. This was very important and very useful to students. Therefore, it was important to find ways to solve learning problems of learners in order to be able to complete learning according to the curriculum. Instructional packages on pneumatic control system using PLC were developed for use in teaching in the course. Instructional Packages were teaching processes that rely on mixed media related to the content and experiences of each unit to help transform learners' learning behaviors effectively [6]. Consistent with Watcharin, R. [7] that instructional packages were an educational technology. Technical or engineering teaching, in particular, required a medium to facilitate effective communication between learners and instructors.

Based on these issues, the researcher was interested in constructing and evaluating the effectiveness of instructional packages on pneumatic control system using PLC. This was to ensure the effectiveness of instructional packages and could be used to develop knowledge and skills in the learners'

pneumatic control system using PLC in terms of further application of professional knowledge and skills

II. RESEARCH OBJECTIVES

To construct and evaluate the effectiveness of instructional packages on pneumatic control system using PLC.

III. RESEARCH METHODS

This research was an experimental study to construct and evaluate the effectiveness of instructional packages on pneumatic control system using PLC. There were steps as follows.

1. The sample group used in the research

The research sample consisted of 22 students in the Bachelor of Science Program in Mechanical Engineering, 4th year of Rajamangala University of Technology Suvarnabhumi. A purposive sampling method was used.

2. Research tools

The tools used in this research were instructional packages on pneumatic control system using PLC, which consists of teacher manuals, content sheets, exercises, lab sheets, teaching materials, theoretical tests and practical tests. There were details in the creation process as follows.

2.1 Study data and analyze the curriculum of applied hydraulics and pneumatics in the Bachelor of Industrial Education program in 2016 to provide learners with the knowledge and skills that are specified in the curriculum.

2.2 Analyze the work by studying from various sources such as documents, books, textbooks, experts and teachers' experience. The information obtained was analyzed in accordance with the course curriculum, along with the analysis of operating procedures, as well as the knowledge and skills required in each task. This was to define the scope of content that would be used to create a teaching set [8], [9], [10]. There were 8 topics as follows:

2.2.1 Programming tasks using LOAD/LOAD NOT commands

2.2.2 Programming tasks using AND/AND NOT commands

2.2.3 Programming tasks using OR/ OR NOT statements

2.2.4 Programming tasks using the OUT command

2.2.5 Programming tasks using TIM (Timer) commands

2.2.6 Programming tasks using CNT (Counter) commands

2.2.7 Programming tasks using SET/RSET commands

2.2.8 Programming by applying automatic control commands

2.3 Assess the suitability in detail of the job list based on job analysis, work procedures, knowledge and skills required in each job. There were 5 experts who had experience teaching pneumatics and PLC control to get the scope of content used

to construct instructional packages, then applied suggestions to improve to make it more complete.

2.4 Establish behavioral objectives to define the scope of content, media, measurement and evaluation, as well as to organize teaching and learning activities in accordance with behavioral objectives.

2.5 Create instructional packages which include teacher manuals, content sheets, practice, lab sheets, teaching materials, theory tests and practical tests.

2.6 Assessed instructional packages by 5 experts who had experience teaching in the course of Pneumatics and PLC Control. The details of the assessment were as follows:

2.6.1 Assess the suitability of instructional packages, including teacher manuals, content sheets, exercises, lab sheets, teaching materials and practice tests along with using the information and suggestions from experts to improve the instructional packages to be more suitable.

2.6.2 Evaluate the test based on the Index of Consistency between the behavioral objectives and the test (IOC), it was found that the conformity index was between 0.6–1.00, which is higher than the benchmark of 0.5.

2.7 Instructional packages were tested with an experimental group of 5 people to study deficiencies in teaching, content, media and language used as well as teaching and learning activities along with the information obtained to modify the instructional packages before further use.

2.8 Complete instructional packages on pneumatic control system using PLC.

3. Experiments and data collection to be used to assess the effectiveness of instructional packages

Data collection to be used to assess the effectiveness of instructional packages, the details were as follows.

3.1 Pre-test was used to test the basic knowledge of the learners.

3.2 They were taught using generated instructional packages starting from task 1 through task 8. At the end of each assignment, learners' complete exercised to measure their progress during the course and then assigned learners to practice on the lab sheets of each assignment.

3.3 Post-test was used after the learner had completed all the tasks. Students were tested on their knowledge with a post-test. After that, the students were allowed to take the next practical test.

3.4 The scores obtained from practice exercises, theory tests, lab sheets and practical tests were analyzed to determine the effectiveness of the instructional packages.

IV. RESEARCH RESULTS

The results of the evaluation of the effectiveness of instructional packages were carried out as follows:

1. The results of the evaluation of the effectiveness of instructional packages in theory found that the average student's practice accuracy was 84.39% and the average quiz was 80.15% as shown in Table 1, which indicated that the theoretical instructional packages created by the researcher were effective at 80/80 criteria. Table 1 showed the theoretical evaluation results of instructional packages.

Table 1 shows the theoretical evaluation results of instructional packages.

Score	N	ΣX	\bar{X}	Percent
Exercise	22	557	25.318	84.39
Quiz	22	529	24.045	80.15

2. The practical evaluation of instructional packages found that the students who took the practice alone had a mean score of 85.23% and the students who took the practice exams with practice packages had a mean score of 82.73% as shown in Table 2, which indicated that the practical instructional packages created by the researcher were effective in the 80/80 threshold.

Table 2 shows the practical evaluation results of instructional packages.

Score	N	ΣX	\bar{X}	Percent
Workshop	22	1500	68.18	85.23
Practical test	22	364	16.55	82.72

3. The results of the analysis for educational progress showed that the mean score from the post-test was significantly higher than the pre-test at the .05 level as shown in Table 3, which indicated that for the instructional packages, the learners had a statistically significant increase in learning achievement at the .05 level.

Table 3 shows the results of the difference analysis between pre-test and post-test.

Test	N	ΣX	ΣD	ΣD^2	t
Pre-test	22	336	193	1809	17.52**
Post-test	22	529			

**It was statistically significant at the 0.05 level.

V. DISCUSSIONS

The results of the research showed that constructing and evaluating the efficiency of instructional packages on pneumatic control system using PLC that the researcher built was considered to be effective according to the 80/80 criteria and consistent with the research hypothesis. In theory, the first efficacy value obtained with an average learner's practice score during the course of study was 84.39%, which was higher than the first criterion of 80. The latter had an average

post-test score of 80.15% higher than the specified latter criterion of 80. In practice, the first performance result obtained with an average learner's workshop score during the course of study was 85.23%, which was higher than the specified first criterion of 80. The latter's performance was obtained with an average performance test score of 82.73%, which was higher than the specific latter criterion of 80. In addition, the results of the study progress analysis showed that the pro-test scores were significantly higher than the pre-test scores at the .05 level. It showed that instructional packages on pneumatic control system using PLC could encourage learners to learn more. This was consistent with the research of Surachet, W. [11] that constructs and evaluates the efficiency of PLC packages in industrial computing. The results showed that PLC packages were effective at 81.20/80.50 and the lab sheets were of good quality. It was also consistent with the concept of Suchitra, C. [5] that construct and evaluate the efficiency of instructional packages on pneumatic control system using PLC found that, instructional packages were effective at 82.00/85.25, and learners with the instructional packages created had a statistically significant increase in learning achievement at the .05 level. The results also showed that learners had a greater understanding of pneumatics control using PLC programs than traditional theory-only teaching. Consistent with this research, it was found that teaching management, controlling pneumatics using PLC or automatic control was a subject that required learning in theory and practice in order to understand how to control pneumatics using PLC from real hands-on operation with instructional packages. However, engineering students needed a better understanding of flexible manufacturing and PLC control. Therefore, there should be two components of teaching, which were theory and practice, so that learners could apply theoretical concepts to practice correctly [12]. However, in this research on instructional packages, the researcher had broken down the content into jobs to suit the learner's perception of the content as well as the order of learning to action steps and must allow learners to learn from real practice along with frequent practice exercises and practice of designing programming simulations according to the worksheets and lab sheets that have been set. After that, the data was loaded into the PLC to test in accordance with the conditions of working with the practice set, which is a real device. Operations must be repeated until skill and proficiency were acquired. The results of the experiment would give learners a lot of fun and excitement with the practice set that simulates the work of industrial machines and they took pride in being able to control their work according to the conditions set in the lab sheets. This was to reinforce and motivate students to continue learning about other topics.

In addition, the researcher had also conducted teaching and learning by allowing students to learn step by step or learn from the content, instructions and conditions of instruction starting from easy to difficult as well as differentiating content to suit the learner's learning level. Consistent with Pisit, M. [13] that the course content must be broken down or divided into sections and must be arranged in an appropriate order, teaching from simple to difficult level and teaching from the known to the unknown. In line with the research of Krisada, S. and Sayan, C. [14] who developed the PLC learning model in industrial control, the theoretical study of the past students would not get the attention they deserve but the shift from model to more practice had created more interest in skill training among students and materials and equipment for training were prepared, as well as continuous follow-up practice. Thus, it showed that the PLC-controlled learning model required learners to learn through experimentation and practice in order to link from theory to practice and the actual results of the experiment. However, the management of teaching and learning on pneumatic control using PLC, learners should have knowledge of basic pneumatics and electrical pneumatics in terms of equipment selection, electrical symbols and electrical pneumatic circuit design as well as basic computer knowledge for starting learning at the same time. If learners were lacking readiness in such subjects, additional tutoring should be arranged before learning so that learners could achieve their educational goals. The results of this research showed that instructional packages on pneumatic control system using PLC created by the researcher could be used in teaching and learning management and learner development effectively. As a result, learners had higher academic achievement.

VI. CONCLUSION

It could be concluded that instructional packages on pneumatic control system using PLC created by the researcher had a theoretical efficiency of 84.39/80.15 and a practical efficiency of 85.23/82.73 which met the 80/80 criteria. In addition, the results from the analysis of educational progress from the post-test mean scores were significantly higher than the pre-test average scores at .05 level. It showed that the instructional packages on pneumatic control system using PLC created by researchers could be used in teaching and learning management and developing skills in pneumatic control system using PLC of learners as well as developing higher learning achievements of learners.

VII. SUGGESTIONS

1. Suggestions from this research, students need to have a basic knowledge of electric pneumatic control work and basic

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computer usage so that students can start learning at the same time.

2. The recommendation for further research is the development of instructional packages that focus on professional competency and in accordance with the labor skill standards of the Department of Skill Development or professional qualifications standards to give students the opportunity to take a career standard test. This is to increase job opportunities and build more confidence in the establishment.

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Mental Health on The Outcomes of Management And Characterization During Covid-19 Pandemic: Review And Bibliometric Analysis

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Abstract— The research aims to be analyzed using scientific mapping to visually examine similarities and differences in population-based mental health research trends during COVID-19 and to provide references for related research in COVID-19 pandemic. The databases of the Web of Science and the China National Knowledge Infrastructure were used to retrieve the literature on population-based mental health during the COVID-19 from 2019 to 2020 and the visual analysis software Citespace5.7 R1 was used to quantify the COVID-19 literature. The co-occurrence word clustering analysis included the regions, institutions, funding supports, themes and contents, and author collaborations. Results 2,193 relevant articles were obtained. The co-occurrence word clustering analysis showed that there was more research on population-based mental health with regard to telemedicine, lifestyle, dissemination of social media, protection behavioural consciousness, psychological reactions among different groups, public mental states, including fear, anxiety, and depression, whereas research in China was mainly on the psychological situation during the COVID-19 pandemic, prevention of post-traumatic stress disorder, psychological mechanisms, cognition about COVID-19, psychological nursing, and stress reactions. The literature published by Chinese researchers on population-based mental health has a significant impact on the academic world.

Keywords— Bibliometrics, clustering analysis, COVID-19, psychology

I. INTRODUCTION

It In December 2019, the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) was a newly discovered ribonucleic coronavirus isolated and identified in patients with unexplained pneumonia. Before it was named by the International Committee of Viral Classification on February 12,2020, it was called 2019-nCoV.SARS-CoV-2 mainly causes respiratory and digestive tract symptoms, as well as regarding to symptoms ranging from mild self-limited disease to severe pneumonia, acute respiratory distress syndrome, septic shock, and even systemic multiple organ failure syndrome. Public health emergencies caused by COVID-19 seriously threaten human health [1-3]. The mortality and morbidity due to COVID-19 have rapidly increased worldwide from December 2019 to the present [4, 5]. The virus not only threatens physical health but also imposes huge burdens on psychological health due to lockdown and uncertainty about increased job losses etc. Thus, it is expected

that there will be a huge quantity of research related to mental health [6]. As the virus broke out in Wuhan, China, most of the research data in China were published in CNKI. Therefore, this study will incorporate CNKI data combined with WOS data. The author will analyze and compare the differences between China and other countries in COVID-19 mental health-related research provided, and provide reference evidence for future related research.

II. METHODOLOGY

Data sources and methods of retrieval: the citation index database of the Institute for Scientific Information (ISI) and the core databases of the WOS and CNKI Chinese database were searched for articles published up to 31st July 2020. The retrieval strategy for the WOS was “Psychology” or “Mental health” or “Depression” or “Anxiety” or “Interpersonal sensitivity” or “Obsessive-compulsive” or “Somatization” or “Emotion” and “COVID-19” or “Novel coronavirus pneumonia” or “NCP”. Keywords in Chinese of the above were used for CNKI: “新冠” or “新型冠状病毒” or

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“COVID-19” or “NCP” and “精神” or “心理” or “情绪” or “抑郁” or “焦虑” or “躯体化” or “强迫”. In total, 1,792 articles were retrieved from WOS and 2,166 from CNKI. After eliminating irrelevant literature, 1,403 articles on mental health during the COVID-19 were included from the WOS and 790 from CNKI.

Data Analysis: the data were analyzed using the statistical software; including the year of publication, country, research institution, funding institution, journal, author, number of papers published, impact factor (IF), number of citations, literature type and H Index, and others. Additionally, the software CiteSpace5.7 R1 was used for co-occurrence keyword clustering analysis to describe the research focus and trends of population-based mental health from 2019 to 2020 taking the COVID-19 outbreak time as a source. The years per slice was set to “1” and the other threshold values were in default system options.

III. RESULTS OF THE STUDY

Literature quantity distribution: in the total of 4,708 citations, 1,403 related articles from the WOS were included, comprising 436 articles from the USA (30.704%), 258 from China (18.169%), 188 from Britain (13.239%), 133 from Italy (9.366%), 98 from Canada (6.901%), 32 from Hong Kong and two from Taiwan. The articles were written in seven languages (1,440 articles in English accounting for 97.232%), involving 28 countries. Four hundred and eighteen articles were funded, with 648 fund sponsors in total. There were 790 related articles indexed in CNKI, among which, 289 articles were funded. The research on the mental health during the COVID-19 on the WOS started in 2020, while CNKI related research in 2019. The publication chronology of the research included in WOS and CNKI was related to the region and country where the COVID-19 outbreak occurred [7, 8]. Periodical distribution of literature: the impact factors and quantity of papers are positively related to the academic influence of the journal in the field and the number of articles in journals with significant influence can represent scientific research in a country or region in a specific field. The number of publications issued by different countries can help to understand the trend and characteristics of journal selection by researchers in this field [9, 10]. The top ten journals in the WOS published 379 papers, accounting for 26.69% of the total literature, with Psychological Trauma Theory Research Practice and Policy publishing the largest number of publications, with a total of 102 papers. There were considerable differences in the number of publications in different countries, with Chinese researchers coming second to America, as depicted in Table 1.

Table 1 Distribution of WOS journals

Journal	Published Literature Count	Journal Impact Factor(JCR)	United States	China	United Kingdom	Italy	Canada	Australia	Spain	India	Germany
Psychological Trauma Theory Research Practice And Policy	102	2.595	56	3	10	7	4	2	5	2	2
International Journal of Environmental Research And Public Health	61	2.468	11	19	3	7	4	2	5	0	1
Psychiatry Research	42	2.118	8	14	0	2	2	1	2	3	2
Brain Behavior And Immunity	36	6.633	13	12	3	5	3	1	3	3	1
Asian Journal of Psychiatry	30	2.529	4	7	2	1	0	1	1	15	0
International Journal Of Mental Health And Addiction	28	1.648	6	4	9	1	2	2	1	0	0
International Journal Of Social Psychiatry	27	1.439	1	5	3	2	1	2	1	3	0
Frontiers In Psychiatry	20	2.849	4	8	4	4	1	2	1	0	0
Journal of Affective Disorders	17	3.892	1	9	3	2	1	2	4	0	0
American Journal of Geriatric Psychiatry	16	3.393	8	0	0	0	4	0	1	0	1
Bmj British Medical Journal	16	1.127	4	0	5	0	1	1	1	0	0
Lancet Psychiatry	15	16.209	6	4	5	2	0	1	1	1	0
Plos One	14	2.74	3	5	1	0	0	1	2	0	2
Frontiers In Psychology	13	2.067	0	4	1	5	1	0	3	0	0
Journal of loss trauma	12	0.769	5	2	0	0	1	1	0	0	0

Lancet articles were most frequently cited, 403 times in total, with Lancet and its preprint website including a significant number of relevant studies during the COVID-19 pandemic. There were nine journals with an impact factor >3 in the WOS (Figure 1) and the top ten journals in CNKI published 190 articles, accounting for 24.05% of the total number of articles. Psychologies published most articles, with a total of 37, as shown in Table 2. There was one journal with an impact factor >3 and among the top fifteen journals, Chinese Mental Health Journal had the most publications (Figure 2). Among the top fifteen journals with a high impact on population-based mental health during the COVID-19, the United States journals took the largest proportion, followed by Canada and the Netherlands. Psychiatry and Clinical Neurosciences is from Japan. There was a lack of influential journals in psychology in China because Chinese researchers prefer to submit such papers to Chinese nursing journals, with Chinese General Nursing having the most articles regarding population-based mental health. However, there were only two articles in the highest impact factor psychological journal of *acta psychologica sinica*.

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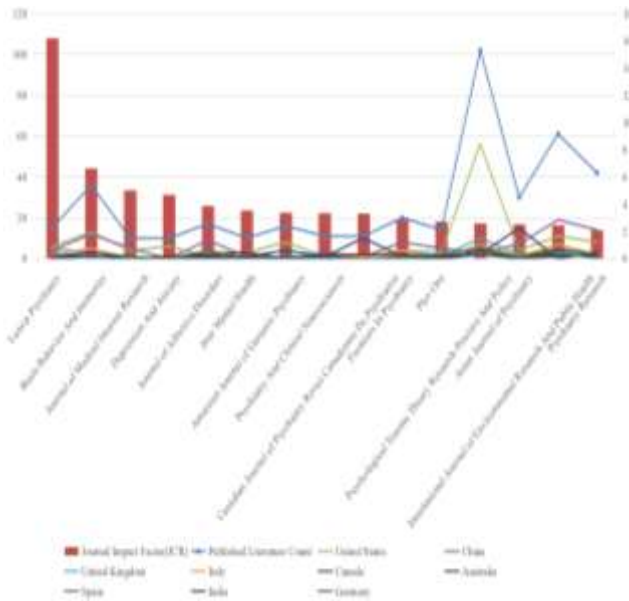


Fig.1 WOS journal impact factors and literature quantity distribution

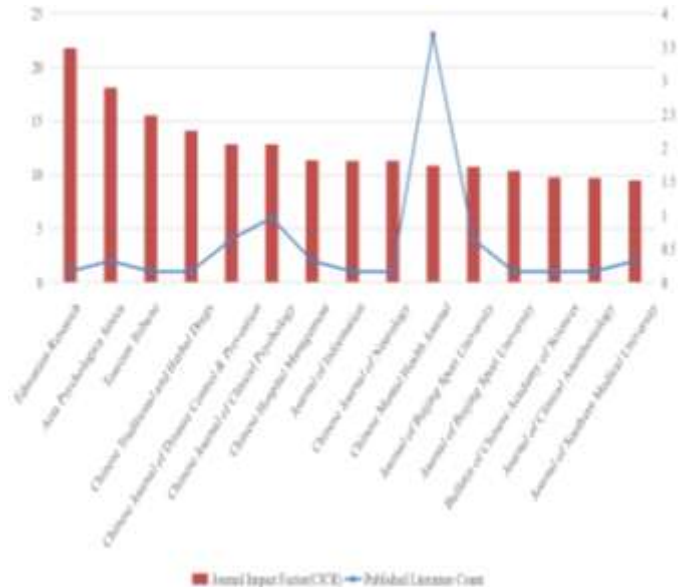


Fig.2 CNKI-journal impact factors and literature quantity distribution

Table 2 Periodical distribution in the CNKI

Journal	Published Literature	Journal Impact Factor (CJCR)
Psychologies	37	0
Chinese General Nursing	29	0.206
China Journal of Health Psychology	24	1.215
Chinese Mental Health Journal	23	1.735
Journal of Nursing Science	18	1.166
Nursing of Integrated Traditional Chinese and Western Medicine	13	1.437
Sichuan Mental Health Chinese Nursing Research	11	0.606
Journal of Qilu Nursing Health Research	11	0.321
Journal of Chengdu Medical College	10	0.639
Chinese Journal of Woman and Child Health Research Psychological Communications	8	0.544
Journal of International Psychiatry	8	0
Journal of Nursing	7	1.229
Journal of Nursing	7	0.896

Distribution of research institutions and authors: the centrality of betweenness measures the ability of institutions or researchers to act as intermediaries. If this institution or the author rejects the media, other related institutions or researchers cannot communicate. The more such positions are occupied, the more the institution or the researcher has a high intermediary nature, and the more people must pass through him for contact. In CiteSpace, nodes with betweenness centrality exceeding 0.1 are called key nodes [11].

The WOS involves 2,077 research institutions and 1,239 fund support institutions, with Huazhong University of Science and Technology and Wuhan University of Science and Technology being the most cited; the University of Cambridge has the highest degree of centrality; the United States Department of Health and Human Services funded the most. The high yield author is Mark D Griffiths, as shown in Figure 3. There are 1,245 research institutions involved in COVID-19 research in China, and the high yield author is Qian Ying. The Key Laboratory of mental health, Institute of Mental Health, Peking University, and National Centre for Clinical Medicine of Mental and Psychological diseases (Sixth Hospital of Peking University) are cited the most, with the National Natural Science having the largest proportion of funding, as shown in Figure 4.

Compared with the institutions in China, foreign institutions researching population-based mental health during the COVID-19 pandemic are more closely linked and have more cooperation. The University of Cambridge and Stanford University are the most cooperative institutions with a

centrality [11, 12] of 24 and betweenness centrality >0.1 in CiteSpace is the key node. In China, the Huazhong University of Science and Technology and Peking University have the highest degree of cooperation, with a betweenness centrality of 6.

Distribution of research fields: the WOS researchers focused on psychological influencing factors, sentiments, sars-cov-2 comparison, media communication, and cognition, whereas Chinese researchers mainly focused on the investigation, psychological mechanism, qualitative research, and psychological intervention.

Influence of the literature as the follow:

H index: American theoretical physicist Hirsch proposed the H index (h) to evaluate academic achievements [13], the higher the h, the greater the impact of a paper. H means that among all the N_p papers, h papers are cited at least h times, while the other (N_p-h) papers are cited less than $(h+1)$ times [14]. The H index of the United States is 17, China 25, Britain 14, Italy 10, Canada 10, Australia 9, Spain 5, India 5 and Germany 7.

Top 10 cited literature and impact factors: there is a positive correlation between the number of citations and the academic influence of research in this field. Highly cited journals often provide an essential research basis for a specific field [15, 16]. During the COVID-19 pandemic, Chinese researchers provided numerous high-quality research papers for the international community. Immediate Psychological Responses and Associated Factors during the Initial Stage of the 2019 Coronavirus Disease (COVID-19) Epidemic among the General Population in China achieved the highest number of citations, three hundred and thirteen, indicating that the quality and reliability are extraordinary, as shown in Table 3. Popular research in China and other countries: the primary research information included in the WOS and CNKI was imported into CiteSpace 5.7 R1 to realize the visual analysis of keywords and present the text data objectively with "term" and "keyword" as nodes [12]. The top five most frequently cited keywords in WOS were "covid-19", "mental health", "depression", "anxiety", and "coronavirus", and the word "depression" has the highest centrality of 20. The cluster graph of nominal terms was obtained based on the keyword co-occurrence network. The modular Q and Mean Silhouette are two indicators to evaluate the effect of mapping, ranging from zero to one. The higher the Q value, the better the clustering result and $Q > 0.3$ indicates the network structure is significant. The closer the S value is to 1, the higher the homogeneity of clustering, when $S \geq 0.5$, the clustering effect tends to be reasonable and $S \geq 0.7$, the clustering effect is stable and reliable. The Q and S of the WOS co-occurrence clustering map were 0.7785 and 0.7515, respectively.

Moreover, there was a total of 16 key terms clustering, depicted in Figure 5.

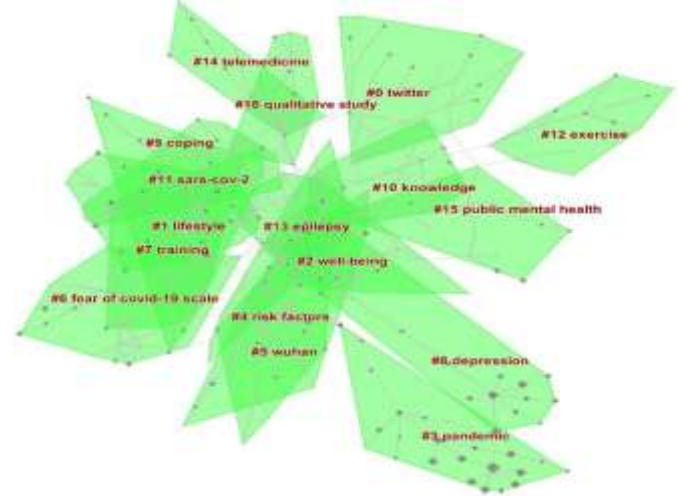


Fig.5 Co-occurrence clustering map of WOS keywords
The top five most frequently cited keywords in CNKI are "novel coronavirus pneumonia", "anxiety", "new pneumonia", "mental health", and "depression". "Novel coronavirus pneumonia" has the highest clustering centrality of 36. The Q and S of the CNKI co-occurrence clustering map are 0.7705 and 0.7595, respectively. There were 14 key terms clustering, as shown in Figure 6.



Fig.6 CNKI keywords co-occurrence clustering map

IV. DISCUSSIONS

It has been over half a year since the outbreak of COVID-19 in December 2019, hence, the scientific research on this public health emergency continues. Domestic and foreign researchers engaged in the early period of the outbreak were dedicated to epidemic prevention and control, researching the treatment of traditional Chinese medicine, dissemination and

epidemic characteristics, community protection management, vaccine development, diagnosis plan, prevention strategy, and clinical Medication [27]. Three months after the beginning of the epidemic, there were nine studies on the mental health of medical staff and the public during the COVID-19[28]. With the development of the epidemic, 2,193 research papers on population-based mental health during the COVID-19 were published on the WOS and CNKI by July 2020, presenting specific characteristics.

Global research on the impact of COVID-19 on mental health: there were nine countries with more than ten articles globally, the United States, China, the United Kingdom, Italy, Canada, Australia, Spain, India, and Germany, with China and the United States accounting for 50% of the global publications. Each country has its expressive power in different journals and a preference for selecting and submitting articles related to the scientific research environment, the cooperation scope of journals, and the difficulty of the collection. In Asia, the scientific research achievements of Chinese researchers were most included in the International Journal of Environmental Research and Public Health. With a prominent contribution to the Asian Journal of Psychiatry, India is the only country with more than ten articles included in this journal. Huazhong University of Science and Technology in China plays the role of data source and cooperates closely with research institutions in China and worldwide. The novel coronavirus pneumonia is a sudden public health emergency with high infectivity, and the population was not aware of its transmission and epidemic laws at the early stage. In China, People quickly felt that their safety was threatened, and they were prone to negative emotions such as tension, fear, depression, anxiety, and sadness, thus, research on the mental health of the population is very important.

The rapid scientific research response to the mental health after COVID-19: initially, the Lancet published a comment from the Health Science Centre of Peking University [8] emphasizing that mental health care should be considered during the new coronavirus pneumonia, thus enhancing social stability. Lancet Psychiatry collected articles published by the School of Health Sciences of the University of Macau and the People's Hospital of Wuhan University calling for attention to mental health care issues during the outbreak and the mental health status of medical staff in Wuhan. Relevant literature of the CNKI was published earlier than that of WOS journals, with research institutions in China responding quickly to research on population-based mental health. A total of 258 papers were published, ranking second in the world. China ranked No. 1 globally with an H index of 25 in the WOS literature and had the most significant influence. Scientific

researchers have a good grasp of primary data and literature quality. Regarding the total number of citations (1,080), seven of the top 10 highly cited articles were from China or cooperation among participating institutions, considering the influencing factors of COVID-19 mental health, telemedicine psychological intervention, scale construction, first-line medical staff, psychological status and psychological challenges of college students, and multidisciplinary collaboration. These seven articles are the primary articles of COVID-19 mental health research and have high research value. Lancet Psychiatry, as an influential journal in the field of psychological and spiritual orientation, has an H index of 77. There were four papers on the population-based mental health from China during the COVID-19, which exceeds the previous average number of published articles. The results of the Chinese studies provided a high-quality reference for research on the population-based mental health during the COVID-19. Thus, China has paid great attention to mental health issues in the early stages of the epidemic.

Suggestions to improve Chinese journals: most of the 790 Chinese papers were descriptive investigation, with a lack of quantitative analysis and qualitative research. The research methods consisted of 188 current situation investigations, 93 experimental studies, 36 qualitative studies, 16 psychological mechanism studies, and 1 meta-analysis. Some problems still exist, including the defective research design of experimental research, the high degree of bias, single research tools of qualitative research, the most used subjective phenomenological analysis method, and the rare application of data conversion tools. Hence, the literature is of low scientific quality and reliability. At present, Chinese journals have not entered the international frontier, with the low influence factors of psychological and spiritual journals. There are 15 Chinese psychological and spiritual journals collected in the research, including 18 nursing journals and 87 medical journals. Besides, the contribution specificity of Chinese journals is weak, reflecting that the mental and spiritual health and decontamination in China need to be strengthened [29, 30].

China and the rest of the world: in the related field of the population-based mental health during the COVID-19 pandemic, the overlapping research hotspots in China and other countries include cognition, qualitative research, depression, and mental health. The hot research topic in China has shifted from the current investigation of depression and anxiety to social support, psychological resilience, psychological stress, psychological nursing, psychological experience, psychological crisis, and other issues. In contrast, foreign studies have gradually shifted from risk factor analysis, public health to other fields such as psychological,

cognitive behaviour, cognitive behaviour strategies, the impact of lifestyle on psychology, dietary style, telemedicine, “ripple effect”, “psychological typhoon eye effect”, phenomenology, physical intervention, and randomized controlled experiments [1, 17, 29]; There are few studies on the use of telemedicine in psychological protection in China but more than 50 US health systems already have such programmes. Jefferson Health, Mount Sinai, Kaiser Permanente, Cleveland Clinic, and Providence, for example, all leverage Tele-health technology to allow clinicians to see patients who are at home. Direct-to-consumer (or on-demand) telemedicine, a 21st-century approach to forward triage that allows patients to be efficiently screened, is both patient-centred and conducive to self-quarantine, protecting patients, clinicians, and the community from exposure. Nonetheless, there are shortcomings such as too short timeliness [31], so how to maximize the advantages of telemedicine in mental health intervention during the COVID-19 pandemic, etc. A large number of multi-centre studies of high-quality research are needed to verify. The traditional Chinese cultural background leads to the low acceptance of mental health problems and a lack of strong social support. The psychological state of particular groups, such as college students who failed to return to school and the clinical front-line medical staff fighting against the epidemic, has received much attention in the media, resulting in different degrees of negative psychological emotions. Also, the public lacks skills and knowledge about public health emergencies, these negative emotions need to be addressed urgently. Domestic research is more inclined to explore the family social support and the psychological mechanism of the population.

V. CONCLUSION AND LIMITATIONS

During the COVID-19 pandemic both at home and abroad, this comparative analysis described the study status, hotspots, and trends of population-based mental health. As far as China is concerned, current research on population-based mental health during the COVID-19 has a specific foundation, with the largest proportion of the highly cited international literature. However, the depth, breadth, and rigour of research design in China still need to be strengthened. More importance should be attached to multidisciplinary collaboration, personalized psychological intervention, and phenomenological research to enrich research topics. The work only analyzed the core data set of the WOS, the literature of the CNKI, and the population-based mental health in the pre-epidemic period, given the impact of the post-epidemic situation on the mental health of the

population, relevant studies need to be performed in the future.

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Fig.3 Literature research institutions of the WOS



Fig.4 Literature research institutions of the CNKI

Table 3 Top 10 cited articles

Cited Literature	Journals	Journal Impact Factor	Sum of Times Cited	Countries
1.Immediate psychological responses and associated factors during the initial stage of the 2019 Coronavirus Disease (COVID-19) epidemic among the general population in China[17]	International Journal of Environmental Research and Public Health	2.468	313	China, Singapore
2. Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019[18]	Jama Network Open	5.032	285	China
3.Online mental health services in China during the COVID-19 outbreak[19]	Lancet Psychiatry	16.209	136	China
4.Mental health care for medical staff in China during the COVID-19 outbreak[20]	Lancet Psychiatry	16.209	125	China
5. Multidisciplinary research priorities for the COVID-19 pandemic: a call for action for mental health science [21]	Lancet Psychiatry	16.209	119	UK, Sweden, USA, Australia, Scotland, Wales
6. Managing mental health challenges faced by healthcare workers during COVID-19 pandemic[22]	BMJ-British Medical Journal	30.223	82	United Kingdom
7. The psychological impact of the COVID-19 epidemic on college students in China[23]	Psychiatry Research	2.118	79	China, UK, USA
8. Patients with mental health disorders in the COVID-19 epidemic [24]	Lancet Psychiatry	16.209	71	China
9.The fear of COVID-19 Scale: Development and initial validation[25]	International Journal of Mental Health and Addiction	1.648	71	China, UK, Sweden, Iran
10.The outbreak of COVID-19 coronavirus and its impact on global mental health [26]	International Journal of Social Psychiatry	1.439	67	Brazil, Paraguay, Italy

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Tourist Behaviors and Tourism Management Guidelines for Khmer Civilization Tourist Attractions in Buriram province

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Abstract— This research aims to study tourist behaviors and trends in tourism management elements for Khmer Civilization tourist attractions in Buriram province provide a management guideline for sustainable tourism management for historical tourist attraction. Research questionnaire is a research instrument with random sampling technique using 300 samples. The research is conducted during October 2018 to September 2019 using qualitative analysis (frequency, percentile, mean), and quantitative analysis (content analysis). The result indicates that most of tourists are located in northeast of Thailand. The attractiveness of tourist attraction is the primary motivation to travel in particular tourist destination while friend and family are the major references of tourist information. Private care is main transportation vehicle. Most of tourists in Muangtam Temple and Nong Hong Temple are travel with family while tourists in Phanomrung Temple are travel with friend using tourism budget per trip less than 1,000 Bath per person with at least 3 tourist attractions per trip. The results of tourism management assessment indicate that the tourist satisfactions are in the medium rank; Phanomrung Temple ($\bar{x} = 3.33 \pm 0.82$), Muangtam Temple ($\bar{x} = 3.28 \pm 0.84$), Nong Hong Temple ($\bar{x} = 3.09 \pm 1.14$). In this research, there are 5 dimensions of tourism management guideline as 1) landscape and infrastructure development, 2) create value added using storytelling, 3) develop information flow of tourism supply chain, 4) develop necessary skills and expertise of tourism staff, 5) promote proactive marketing strategies to attract new and quality tourist also encourage the revisit intension of tourist.

Keywords— Tourist Behavior, Tourism Management, Khmer Civilization Tourist Attraction in Buriram

I. INTRODUCTION

Khmer civilization tourism is categorized in cultural tourism that express the history through architecture, sculpture, and art work with identity that reflect the belief and idea in the former times. Khmer empire is located in Cambodia in present. In the former times, Khmer empire had immense power through art and culture, architecture, and belief system in boarder area including northeast and center part of Thailand [1].

Buriram province is previously part of Khmer empire in the ancient times during the golden age. In present, Buriram province is one of the popular tourist destinations which ancient stone castles are located around the city. The famous Khmer civilization tourist attractions are (1) Phanomrung historical park, Hindu religious place and famous ancient stone castles in Thailand, is located in the top of Phanomrung hill which previously volcanic mountain in ancient times. The castle is constructed with pink sandstone and laterite stone with artistic work. (2) Prasat Muang Tam, the ancient Khmer sanctuary in Hindu belief, the sanctuary is constructed in

purpose of rituals, ceremony and worship with symmetry and artistic work. In the past, Prasat Muang Tam is surrounded with the ancient villages in Khmer empire. (3) Prasat Nong Hong, the small historic site which consists of the 3 small castles which constructed as symbolic of Phra Sumen mountain, the center of all physical, metaphysical and spiritual universes in Hindu belief [1]. All of these three ancient historical sites are the famous tourist attractions that could reflect the way of life and beliefs of people in ancient time through the present, particularly Phanomrung historical park that applied as symbol of Buriram province. In addition, the annual festival of Khao Phanom Rung (First Saturday and Sunday in April) which is popular festival with light and sound show also entitled "Phanomrung miracle" the solar phenomenon of the temple when the sun rises through the 15 doors [2]. The tourism statistic of Buriram province reveals that the number of tourists in 2017 is 1,627,238 people (5.97 percent increase) comparing with 1,535,714 people in 2016 [3] which reveals the popularity of tourist attraction in Buriram province. However, the study indicates that the tourism management in Khmer civilization tourist attractions is still lack of the integration between related parties such as

the tourist route system, the activities for tourist in tourist attraction also the linkage between related businesses. For this reason, the study would provide the guideline in identifying tourism demand and tourism supply which are necessary to understand tourist behavior also aware of the physical characteristic, environment, and readiness of current tourism resources [4] which is in accordance with management strategy of Buriram province in 2018 - 2021 especially in economic strategy 1: the center of Khmer civilization and sport tourism and good agricultural practices [5] which could distribute income to community base on sustainable local identity and Thainess.

II. RESEARCH OBJECTIVES

1. To study tourism behavior and opinion of tourists in the management elements of Khmer civilization tourism in Buriran province (Phanomrung historical park, Prasat Muang Tam, Prasat Nong Hong) during October 2018 - September 2019.
2. To provide management guideline for Khmer civilization tourist attractions in Buriram province in promoting sustainable historical tourism.

III. RESEARCH METHODOLOGY

Target group

Tourists who traveling to target tourist destinations; (1) Phanomrung historical park, (2) Prasat Muang Tam, (3) Prasat Nong Hong. The 100 sets of questionnaires would distribute to particular tourist destination (totally 300 sets).

Research Instrument

Close ended questionnaire would distributed to collect tourist behavior in related tourism management element which are physical factor, information flow, financial factor, tourist attraction and related activity, price at tourist destination, and facility.

Data collection

Non-probability sampling is applied to collect the data from target group

Data analysis

Descriptive statistic is implemented to analyze the data in frequency, percentage, mean which presented in table. The information would provide the guideline of tourism management in Khmer civilization tourist attractions also promote as sustainable source of learning in history.

IV. RESEARCH RESULTS

Tourist behaviors and opinions in the tourism management elements of Khmer civilization tourist attractions in Buriram province

The tourist behaviors and opinions in Khmer civilization tourist attraction in Buriram province; (1) Phanomrung historical park, (2) Prasat Muang Tam, (3) Prasat Nong Hong (figure 1-3) reveals that most of tourists in travelling from the northeast of Thailand to visit tourist destination. The attractiveness of particular tourist destination is the main factor to visits the destination while friend and family are the main source of information. Private care is the primary vehicle in travelling to tourist destination. Most of tourists are travelling with their family, while tourists in Phanomrung historical park prefer to travel with their friends. The average tourist expenditure is about 1,000 baht per trip while visits more than 3 tourist attractions in Buriram province. For the element in tourism management, the overall elements in all 3 Khmer civilization tourist attractions are rated in medium position; physical factor, information flow, financial factor, tourist attraction and related activity, price at tourist destination, and facility (Phanomrung historical park $\bar{x} = 3.33 \pm 0.82$, Prasat Muang Tam $\bar{x} = 3.28 \pm 0.84$, Prasat Nong Hong $\bar{x} = 3.09 \pm 1.14$). The results of research investigation are mentioned in detail in table 1, and table 2.

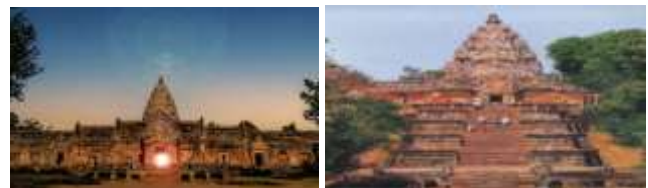


Figure 1 Phanomrung historical park



Figure 2 Prasat Muang Tam



Figure 3 Prasat Nong Hong

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Table 1 Tourist behaviors in Khmer civilization tourism route in Buriram province

Item(s)	Tourist attraction (percentage)		
	Phanomrung historical park	Prasat Muang Tam	Prasat Nong Hong
1. Source of information			
Friend/Family	36	32	39
Television/Radio	16	15	6
Internet/Online media	36	40	20
Magazine/Newspaper/Tourism Institution	20	13	20
2. Reason for travel			
Attractiveness of tourist attraction	60	64	35
Attractive activity in destination	10	10	9
Public relation/News	15	7	3
Persuasion and influence from friend/family	16	20	11
Ease of travel	9	11	4
3. No. of visited tourist attraction in Buriram province (including current destination)			
1 destination	19	20	9
2 destinations	21	29	20
3 destinations	17	14	15
More than 3 destinations	43	37	56
4. Personal spending per trip			
Less than 1,000 baht	54	39	71
1,000 - 3,000 baht	29	36	22
3,001-5,000 baht	7	14	2
More than 5,000 baht	10	11	5
5. Vehicle for travel			
Motorcycle	7	12	50
Private car	44	74	40
Rented car	39	14	1
Bus	10	1	9
6. People who travels with			
Only yourself	7	4	10
Family	26	42	36
Friend	43	34	32
Friend and family	24	20	22
7. Will you revisit or suggest others?			
Yes	96	99	97
No	4	1	3

Table 2 Tourist satisfaction in tourism management elements of Khmer civilization tourist attraction, Buriram province

Item(s)	Tourist satisfaction ($\bar{x} \pm S.D.$)		
	Phanomrung historical park	Prasat Muang Tam	Prasat Nong Hong
Physical factors			
Public transportation system	3.05 ± 1.04	2.86 ± 1.12	2.98 ± 1.15
Road and light condition	3.11 ± 0.86	3.28 ± 0.98	3.14 ± 1.03
Traffic condition	3.23 ± 0.78	3.52 ± 0.86	3.65 ± 0.96
Adequate and clear traffic sign	3.28 ± 0.85	3.35 ± 0.93	2.93 ± 1.12
Coverage of cellular network	3.33 ± 0.84	3.57 ± 0.83	3.68 ± 1.13
Total average	3.20 ± 0.87	3.32 ± 0.94	3.28 ± 1.08

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Information flows			
Attractiveness, clarity, and accessibility of PR media	3.30 ± 0.83	3.34 ± 0.84	3.30 ± 1.01
Correctness and adequate information provided by Tourism service center	3.25 ± 0.85	3.40 ± 0.80	3.29 ± 1.04
Appropriate and adequate of leaflet or handbook	3.24 ± 0.88	3.25 ± 0.85	2.59 ± 1.02
Correctness and clarity of travel information	3.26 ± 0.93	3.33 ± 0.88	3.23 ± 0.98
Appropriate and adequate of label and interpretation sign	3.34 ± 0.88	3.39 ± 0.83	2.90 ± 1.07
Adequate and clarity of guidance and notice	3.36 ± 0.93	3.31 ± 0.86	3.02 ± 1.16
Total average	3.29 ± 0.88	3.23 ± 0.84	3.06 ± 1.04
Financial factors			
Convenient of payment	3.23 ± 0.81	2.97 ± 0.88	2.57 ± 1.18
Availability of ATM	3.10 ± 0.87	2.31 ± 0.97	2.25 ± 1.29
Total average	3.17 ± 0.84	3.18 ± 0.93	2.41 ± 1.24
Tourist attractions and related activities			
Aesthetics and impressiveness	3.78 ± 0.94	4.17 ± 0.68	3.92 ± 0.91
Landscape and environment	3.84 ± 0.88	4.14 ± 0.64	3.95 ± 0.89
Hygiene	3.74 ± 0.82	4.04 ± 0.67	3.75 ± 0.84
Safety	3.64 ± 0.80	3.98 ± 0.70	3.47 ± 0.92
Related activities	3.45 ± 0.91	3.48 ± 0.90	3.17 ± 1.10
Elderly and Disabled service	3.37 ± 0.90	3.17 ± 0.88	2.58 ± 1.12
Total average	3.64 ± 0.88	3.48 ± 0.75	3.47 ± 0.96
Price at tourist destinations			
Price of admission ticket	3.42 ± 0.91	3.91 ± 0.81	3.09 ± 1.58
Price of food and beverage	3.30 ± 0.96	3.60 ± 0.77	3.16 ± 1.36
Price of souvenir	3.22 ± 0.54	3.47 ± 0.70	3.44 ± 1.47
Total average	3.29 ± 0.62	3.35 ± 0.76	3.23 ± 1.47
Facilities			
Adequate parking area	3.47 ± 0.88	3.52 ± 0.87	3.82 ± 0.89
Adequate and appropriate recreation area	3.45 ± 0.77	3.60 ± 0.77	3.61 ± 0.90
Facilities for Elderly and Disabled	3.24 ± 0.83	3.14 ± 0.90	2.46 ± 1.19
Availability and hygiene of restroom	3.32 ± 0.74	3.21 ± 0.87	3.03 ± 1.02
Adequate littering area	3.33 ± 0.74	3.18 ± 0.83	3.62 ± 0.94
Adequate and hygiene of restaurant and refreshment shop	3.39 ± 0.75	3.27 ± 0.72	2.84 ± 1.12
Souvenir shop provides attractive products with identity	3.40 ± 0.88	3.39 ± 0.74	2.56 ± 1.14
Availability of first aid unit	3.33 ± 0.88	3.20 ± 0.89	2.66 ± 1.29
Total average	3.36 ± 0.81	3.32 ± 0.82	3.07 ± 1.06
Overall Results	3.33 ± 0.82	3.28 ± 0.84	3.09 ± 1.14

Tourism management guideline in Khmer civilization tourist attraction to promote sustainable historical tourism

From the research investigation, the tourism management guideline of Khmer civilization tourist attraction in Buriram province is presented in five dimensions as follows;

1. The development of physical component in Khmer civilization tourist attraction: enhance the standard of tourism as "tourism for all" in order to support all tourist group including elderly, disabled, and kid with appropriate and safety physical facility using universal design concept.

2. Value creation through tale, traditional story or history: the particular tourist attraction with numerous contents such as history, architecture, arts, or politics tend to be famous which could communicate more the ideas, concept and experience.

3. The development of information flow to support tourism with the linkage of necessary information for tourist such as suggested tourist attraction, restaurant, local market, and accommodation.

4. The development of personal skill and expertise of tourism personnel particularly in history of Khmer civilization in Buriram province to improve and extend the ability of local guide through workshop by government or

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academic institution to contribute the best experience to tourists.

5. Proactive market public relation (Proactive MRC): create value to Khmer civilization tourist attraction in Buriram province through travel influencer, author, and travel magazine.

V. DISCUSSION

This research aims to study tourist behavior in the tourism management elements of Khmer civilization tourist attraction in Buriram province and present the suggested guideline to promote sustainable tourism. The result indicates that the attractiveness of tourist attraction is the main factor to select as travel destination while travel information is acquired from friend and family. Most of tourists reveals that all tourism management elements are in the medium position including physical factor, information flow, financial factor, tourist attraction and related activity, price at tourist destination, and facility. Label and interpretation sign of tourist attractions also leaflet, handbook, others media are recommended for additional or improvement to support as source of learning. In addition, the related interesting activities is requested by tourists for remarkable sightseeing. However, tourists are satisfied with the aesthetics and landscape of tourist attraction also visited more than 3 attractions in Buriram province per one trip. Most of tourists (inbound and outbound) are travel during the annual festival of Khao Phanom Rung in April while most of tourists plan to revisit destination to Phanomrung historical park (96 percent), Prasat Muang Tam (99 percent), Prasat Nong Hong (97 percent).

The result of research investigation and five suggested guidelines would provide benefit for related institution to improve Khmer civilization tourist attraction in Buriram province while considered the capacity in particular tourist attraction. The study also prioritizes the factors in particular tourism destination that are required for consideration that would be benefit for management plan decision in future. This would generate tourist impression in destination as well as generate sustainable income to community.

VI. CONCLUSION

The study of tourist behaviors and opinions in Khmer civilization tourist attraction in Buriram province which are (1) Phanomrung historical park, (2) Prasat Muang Tam, (3) Prasat Nong Hong using closed-ended questionnaire (300 sets) during October 2010 - September 2019 indicates that most of tourists in travelling from the northeast of Thailand to visit tourist destination. The attractiveness of particular tourist destination is the main factor to visits the destination while friend and family are the main source of information. Private

care is the primary vehicle in travelling to tourist destination. Most of tourists are travelling with their family, while tourists in Phanomrung historical park prefer to travel with their friends. The average tourist expenditure is about 1,000 baht per trip while visits more than 3 tourist attractions in Buriram province. The overall tourism management elements in all 3 Khmer civilization tourist attraction are rated in medium position; physical factor, information flow, financial factor, tourist attraction and related activity, price at tourist destination, and facility (Phanomrung historical park $\bar{x} = 3.33 \pm 0.82$, Prasat Muang Tam $\bar{x} = 3.28 \pm 0.84$, Prasat Nong Hong $\bar{x} = 3.09 \pm 1.14$). The research also suggested five management guidelines for related tourism institution in future management plan decision that are (1) Physical component development of Khmer civilization tourist attraction, (2) Value creation, (3) The Information flow development, (4) Personal skill and expertise of tourism personnel development, (5) Proactive market public relation (Proactive MRC)

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The Development of Mobile Game-Based Learning for Lanna Food Knowledge Transmission to Children in Chiang Mai

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Abstract— Today's teaching and learning processes need to apply technology to attract and create a suitable environment for learning. Digital games are one of the practical tools that help support teaching and learning. Various independent reports have verified the positive relationship between learning and students' engagement by using computer games to attract learners' attention and encourage learning in content. Many Lessons such as Math, science, and English classes have also benefited from digital games. Still, they appear less in cultural content, in which knowledge and cultural wisdom of the past is valuable day by day but will gradually disappear. Due to the lack of proper transmission and storage to pass on to the next generation and the lack of modern cultural learning materials. As a result, the interest and perception of the new generation's culture decreased. This study focused on developing mobile applications using game-based learning to support practicing and stimulate children's learning on Northern Thai cookery topics. There are several activities involved in designing this game, including the preparation of art style, game design documents, level design, game interface design, and evaluation system. In the school or in addition to the exhibit, users will have a creative, active learning experience using the software. They will experience each stage of cooking from the selection and preparation of raw material, ingredients, and kitchen utensils, including cooking techniques and methods according to Northern Thai recipes inherited in the form of a simulation. The game will allow children to practice each step of the local cuisine in the Chiang Mai context and eliminate the complex problem during the long process and tight sequences of the cooking. The method used in designing the application is interviews, paper prototyping, and usability tests on player experience. Studies based on these results will improve the playful application and suggest future work directions.

Keywords— Lanna Cuisine, Game-based learning, Mobile Application, Enhanced learning, Transmission

I. INTRODUCTION

Traditional or local cuisine in each community is a reflection of the identity, culture, and heritage. Powell (2007) describes cookery and eating habits as the identity of a community, age, ethnicity, gender, locale, occupation, and religion. Other researchers claim that preparation and consumption are inextricably linked to the cultural significance of foods, the methods, processes, and materials used to cook them, as well as their customs (Verbeke & Lopez, 2005; Vu, 2009). Then, preserving food practices is one of the most straightforward approaches to grasp the cultural origin and history that is important for every ethnic group. Changes in food consumption and eating habits have been recorded to follow the global trends, especially social transition and worldwide information. Local food increasingly has a bearing on the impact of other food cultures and globalization. Including the people of this generation have embraced highly packaged and convenient pre-prepared foods such as fast food, which makes

them uninterested in traditional cookery. That is another factor contributing to how young people find it difficult to engage in traditional and domestic cooking. Some ethnic groups have begun to lose conventional foodways because several elders are finding that they can no longer pass on traditional expertise to the young generations (Bowen & Devine, 2011; Stringer, 2009).

The classification of Thailand's traditional cuisine is four categories based on geographic area. In the middle of the nation, there is Thai cuisine, Lanna cuisine is in the northern region of the country, Isarn cuisine is in the northeast zone, and Southern cuisine is in the country's southern area. Each traditional local recipe has been passed down from generation to generation over a long time. The uniqueness of Thailand's traditional cuisine, preparation, ingredients, and flavor, which reflected wisdom combined with traditional culture, would be the essential point for reaching the young Thai generation to the perceived background, preparation, and consumption of traditional food in each local area. But among influences from other food cultures, such as Western food, European food,

Japanese food, Chinese food, and convenience food is gradually expanding. Traditional Thai cuisines are at risk of becoming obsolete since there are not enough people among the younger generation who are interested or lack apprentices to properly teach the traditional cookery techniques. In the past several years, the government, the private sector, and the involved have established organizations, integrated schoolings, and created activities to enable the young Thai generation to understand Thailand's traditional cuisine for inherited and to apply in the future. However, as technology advanced in the modern era, new types of media evolved and are gaining popularity today. The youth regard cultural material and education as being outdated due to their curiosity and accessibility.

To cope with the above-mentioned issues, many sectors use information technology and digital media to be used in the teaching process for the students to learn most effectively. That is not limited to teaching in the classroom but extends to the improvement of education that allows learners to learn with lifelong learning features, which is an essential foundation for self-education and the development of potential to be comparable to other countries in the future (Kobkiat Saraubon and Pallop Piriyasurawong, Ed.D., 2014). Technologies and associated resources are incredibly beneficial for assisting instruction in various topics at various learning stages (Chang et al., 2018; Alvarez et al., 2013). Young learners benefit from the advancements of education technology, such as interactive media, digital games, and mobile technology, including training resources, which have entirely changed teaching in the 21st century. Numerous researchers have suggested the use of digital games to aid in learning success. For example, The key elements of digital games are fantasy, inquiry, and challenge; these are all qualities that engage students and keep them entertained (Baltra, 1990; Malone, 1981a). Numerous researchers have suggested the use of digital games to aid in learning success. For example, The key elements of digital games are fantasy, inquiry, and challenge; these are all qualities that engage students and keep them entertained (Baltra, 1990; Malone, 1981a). Similarly, Hain ey et al. (2013) proposed six motivating factors; fantasy, challenge, competition, curiosity, control, and recognition, in gaming. According to Kiili (2005), this study found that games provide the essential criteria of a learning atmosphere, and they have engaging and enjoyable educational opportunities for students. While Giannakos (2013) presented students' excitement, happiness, and emotion were all influenced by the educational game, which resulted in improved student performance. Although much research shows the benefits of games for enhancing student engagement and encouraging learning achievement,

most of the game content in the studies is academic content, such as science, math, or English, none of the traditional cookery content. Consequently, this study aims to address a gap in the literature.

As mentioned above, the digital game will play an essential role in motivating learners to interest in local food knowledge and local food practice. Although, many digital food games have been created and sold in the global market. Most of the food game is still American recipes, European cuisine, and Japanese cooking, but none of Thai cuisine. Consequently, this study aims to develop a mobile game called LannaCuisineGame (LCG), simulating the Lanna cooking process, and understand the relationship between demonstrated in-game gameplay activity and a player's experience of and engagement with the game.

II. RESEARCH OBJECTIVES

1. To design and develop game-based Lanna food knowledge learning for the children.
2. To evaluate the player's experience of game-based learning for Lanna food knowledge transmission to the children.

III. LITERATURE REVIEW

1) Significant of the food knowledge transmission

Cook and Crang (1996) state that food can be "place cultural artifacts," serving as powerful symbols of identity. Food reflected wisdom combined with traditional culture, would be the essential point for inheriting and transmission to the new generation to the perceived background, preparation, and consumption of traditional food. Food knowledge is about ingredients and methods of cooking food, the reflection of cultural history and tradition of community, and the wisdom of ancestors who invented these healthy foods (Narong Sompong and Nattaphon Rampai, 2015, Onanong Thongmee et al., 2015). Similarly, Kwik, J. C. (2008) said traditional cuisine reflects ethnic identity and is often associated with religious rituals. In the past, the transmission of food knowledge was passed down from generation to generation in three methods; observation, word of mouth, and hands-on activities (Md. Sharif, M.S. et al., 2018). Communities and ethnic groups are responsible for transferring food knowledge to younger generations because it is critical for preserving food traditions (Ohiokpehai, 2003). The United Nations stressed the importance of preserving traditional food knowledge to new generations, carrying out deep cultural and ethnic identities for themselves or as peoples (UNESCO, 2007) through the International Workshop on Traditional Knowledge.

2) Lanna cuisine (case study: Chiang Mai)

Lanna cuisine is the local recipe in the upper northern region of Thailand known as the Lanna empire in the past. The Lanna food belonged to the Lanna people who called themselves Khon Mueang, which means the city's people. They had a unique culture, language, beliefs, traditions, and local cuisine that set them apart from other countries across the world and could be considered cultural resources gathered and handed on continuously from past to present (Onanong Thongmee, 2015). The influence of the various indigenous cultures and human diversity in the Lanna empire, such as Thai Yuan, Thai Lue, and Thai Yai affected the local cuisine's flavor and variety, making the local northern food's identity unique (Narong Sompong and Nattaphon Rampai, 2015). So, The suitable combination of knowledge in cookery reflects past cultures and ways of living in the context of coexistence in Lanna communities and ingredients, local vegetables or seasonings, from local raw material. These are making local northern food a valuable cultural item of the Lanna empire. According to Narong Sikhiram (2018), Lanna food can be divided into three-term seasons; winter, summer, and rainy because of geography, climate, occupations, livelihood, and interaction of northern Thai people and other regions involved in Lanna cooking. Another approach, Lanna food can be categorized into three types, including rice, vegetables, and meats:

1. Rice is a staple food for the Lanna, especially sticky rice or glutinous rice that grows during the rainy season. It has a direct consequence on their way of life, resulting in rice-related cultures, bringing in beliefs, values, traditions, languages, plays, performances, utensils, foods, and cooking.
2. Vegetables are seasonal and readily available from natural sources such as river banks and marshes in forests, especially in the rainy season. At present, Lanna people can find vegetables in three sources: natural sources, household growth, and purchases from marketplaces.
3. Meat is the raw material from aquatic animals: shrimps, shells, crabs, fishes, giant water bugs, Etc. Another one is land animals: pigs, chickens, cows, and buffalos. Furthermore, Lanna people also eat insects: crickets, weaver ant eggs, mole crickets, dung beetles, mayflies, Etc (Ketphrom, 2008). Generally, Lanna people define the food's name based on the cooking method. For this reason, several scholars classified Lanna food into various types, not including dessert (Detchkunchon, 2009; Sikhiram, 2014; Phusawang & Sikhiram, 2016; Sikhiram & Phusawang, 2016).

Food styles (by cooking method)	Local name (Lanna people call)	Description	Examples
1. Curry food	“Kaeng”	This kind of food is cooked from mixing water, curry paste with main ingredients of shallot, garlic, fermented beans, shrimp paste (rough) and fermented fish.	Kaeng Banun (Jackfruit Curry), Kaeng Phak Jiangda (Local vegetable), Kaeng Hang Lay (pork curry with garlic), etc.
2. Stir-fried food	“Jao” or “So Namman”	Putting ingredients in a pan and stir-fry them with or without oil.	
3. Spicy Salad	“Laab”	This kind of food is made of meats such as pork and fish by chopping meats before mixed with roasted pounded spices. There are both raw and cooked spicy salads.	Spicy minced pork salad and Spicy minced beef salad
4. Stewed food	“Kaeng Om”	to simmer meat to be soft with light fire and it takes a long time. Stewed food is spicy enriched with different kinds of spices as well as sliced galingale and piece-cut lemongrass.	Beef Om curry, Pork Om curry, and Buffalo meat Om curry
5. Chili dips	“Nahm Prick”	Chili dips are food or seasonings with main ingredients of chili (fresh or dried chili), salt, shallots, garlics, etc. Other ingredients are shrimp paste, hard fermented bean, fermented fish, tomato, galingale, lemongrass depending on type of chili paste.	ginger chili dip, fermented fish chili dip, fermented pork chili dip, crab paste chili dip and vegetable chili dip, etc.
6. Mixing	“Yam, Tam and Sah”	This kind of food is similar in terms of cooking that all ingredients are mixed with little water.	Yam Khai Mod Som, Tam Banun, Sah Ba Khuea Phoi, Yam Som Oh, etc.
7. Steamed food	“Hor Neung”	This kind of food is made of well-mixed ingredients put on a banana leaf to look nice and folding it before steaming in a container	Hor Neung Kai (steamed chicken)
8. Grilled or roasted food	“Ab”	This kind of food is made of well-mixed ingredients put on a banana leaf, folding pattern will be flat clipped with bamboo pins before grilling or roasting.	Fish Ab, Shrimp Ab, pork brain Ab, pork Ab, etc.

Figure. 01: Example of Lanna food’s name and description (Sikhiram, 2018)

3) Definition of game-based learning

Games-Based learning (GBL) is a basic form of learning that helps to develop learners' learning quickly. It is the method of learning that is the most in line with the human learning nature

because humans enjoy playing games and always view them as games. According to a Dutch historian and cultural theorist, [Huizinga Johan \(2014\)](#), has described humans as playable creatures from the past, so playing games is an ancient and integral part of human civilization. Some scholars describe GBL as a learning experience in which game material and gameplay aid in developing knowledge and training, and game tasks provide problem-solving spaces and obstacles that give players/learners a feeling of accomplishment ([Kirriemuir & McFarlane, 2004](#); [McFarlane, Sparrowhawk, & Heald, 2002](#); [Prensky, 2001](#)). While [Sam S. Adkins \(2017\)](#) defined GBL is a method of transferring knowledge through gaming that allows users against themselves or others and has rewards or punishment mechanisms that effectively function as an evaluation method to measure mastery. In conclusion, GBL can be engaging with individual learners because the game design has a deep learning focus in the context of the game. The player can learn while enjoying playing games. In addition, game-based learning is a process where a user interacts and learns together. Hence, GBL is a practical method to design a tool for learning that supports student learning and is very appropriate today.

4) Benefit of Games-Based Learning (GBL)

The UNESCO Policy Guidelines for Mobile Learning, which many advantages of mobile learning support education in the many perspectives [Saltsman, George. \(2013\)](#). Mobile learning simplifies personalized learning. It connects between formal and informal education and nearly becomes a seamless study. Learners are easy to communicate with each other and have collaborated efficiently in the learning communities ([West and Vosloo, 2013](#)). Apart from this, smart mobile technology has been used in education to include new learning and assessment opportunities ([Nikou and Economides, 2017](#)). There are many benefits of the GBL, such as:

Freedom to Fail: Play provides children with the opportunity to struggle and experiment ([Klopfer et al., 2009](#)). Unlike a conventional classroom setting, students can be discouraged from providing incorrect responses. By playing the educational game, children are trying continuously and experimenting in different ways. Furthermore, students can eliminate fear and failure because the digital game allows them to make mistakes ([Groff et al. 2010](#)).

Clear Goals and Immediate Feedback: The game provides the rules, obstacles, game elements towards a specific target or targets ([Dickey 2005](#)). It benefits players who would like to only focus on a specific target and decrease the distraction of accomplishing many tasks at once. In addition, [Rigby and Ryan \(2007\)](#) report from best practice in their study about free

of complexity and providing immediate feedback is essential to the gamer, making the game feel more interactive and satisfying.

Active learning: The digital game is an exceptional interaction tool that improves students' role to become active for learning activities ([Klopfer et al., 2009](#)). Moreover, they can access conveniently and flexibly the learning archives anytime and anywhere ([Martin and Ertzberger, 2013](#); [Chang et al., 2016](#); [Hwang et al., 2018](#); [Al-Hunaiyyan et al., 2018](#)).

Challenge: A good game can have various obstacles of varying degrees of complexity that the player can complete with few extra abilities of the player ([Gee, 2003](#)). The obstacle that tests someone's skill, creating motivation when they finish, called the challenge that drives players to analyze the alternative ways or develop new approaches to decide where they can make some improvements for success ([Dickey, 2005](#)). In the game design process, the challenge design needs to be done carefully to match the player's skill because a difficult challenge causes a decrease in engagement and motivation ([Kiili 2005a](#)).

Engagement: The students' curiosity and motivation are increasing when playing in an instructional smartphone game opposite the conventional learning approach ([Hwang and Chang, 2011](#)). The same as [Sung et al. \(2017\)](#) claim the education game is a practical tool for promoting increased motivation and improved connectivity. [Tlili et al. \(2016\)](#) stated that mobile learning games have an engaging and immersive learning environment. Therefore, with mobile games, students will gain new knowledge and experiences while also adding more the reach of their motivation for learning.

Formative Assessment: According to [Ash \(2011\)](#) stated that any obstacle that is put in the game that players confront is a test of the players' abilities and knowledge. [Shaffer, \(2006\) and Rupp, \(2010\)](#) show a similar result that indicates the growing global interest in the usage of computer gaming for learning and evaluation. Obviously, the games always provide an assessment of players' knowledge and abilities that differs for each purpose.

5) Activity Theory-based Model of Serious Games (ATMSG) Model

According to [Carvalho et al. \(2015\)](#), one of the various learning game models in education to the analysis of serious games that provide a way to deliberate about the relationships between components of a serious game and the education game goals is the Activity Theory-based Model of Serious Games (ATMSG). This model can explain the structure of the education serious games and clarify the exact role of the teacher or instructor in the game. On the other hand, game designers can use The ATMSG model to support the serious

game design process. There are four-step approaches for applying the ATMSG to develop serious games. At the beginning of the project, the first step for the designer is to focus on the serious game concept. They need to describe the game's primary concept and identify its subjects and corresponding motives in the activity network. The designers have to create a game prototype and game documents (sketch storyboards, game diagrams, application flow, etc.) in the second stage. They also break down components (gaming, learning, and instructor) and identify their actions, tools, and goals related to each node of the game flow diagram. In the third stage, the designer chooses the relevant component directly from the taxonomy of serious game components to place, matching with the node of the game flow diagram to which they are related. The last stage is a description that adds more specific details of its implementation from before stage (e.g., how a score is calculated or the characteristics of a nonplayer character) and explains how the usage of such components and characteristics supports the game's entertainment and pedagogical goals. The result of analysis and synthesis at all stages shows possible weak points in the game design and provides insights on the level of integration of the gaming and learning components, as well as potential design flaws. For this reason, the designer needs to make the changes to the prototype and then completes the process until a suitable configuration is obtained for the learning game.

6) Self Motivation Reports

SDT stands for the Self-Determination Theory (Ryan, 2000; Center for Self-Determination Theory (CSDT), 2021) that provides a comprehensive method for studying human drive and personality. A variety of fields of research, including athletics, culture, and recreation are results of the success of SDT implementation. The power that drives people forward is self-motivation – it is our inner desire to accomplish, grow, evolve, and move forward. Similarly, when players interact with the game system to immerse themselves in playful activity in the game environment, the game gives some experience to players: enjoyable, exciting, challenging, etc., that affect their need to confront the next obstacle in the game. So, a self-motivation report is the resulting measurement of player experience. Przybylski, Rigby, and Ryan (2010) study player motivation when playing video games by applying the SDT to evaluate. This research also developed a measurement tool, the Player Experience of Need Satisfaction (PENS) which assesses the gameplay experiences in terms of competence, autonomy, relatedness, intuitive controls, and presence/immersion. In detail, Rigby and Ryan (2011) state three main areas that the PENS assess: the interface and the players, the action taking place within the game environment, and how the action and reaction of players and game satisfy

specific psychological needs.

IV. RESEARCH METHODS

The researcher uses the analysis and interview method to extract Lanna's food knowledge as a concept design of the food game. This study methodology consists of three stages. Game architecture design is the first step that includes the interface, database, and report. The next stage is developing game prototypes using a game-based learning model. The last one was the player experience evaluation using an observation during play and a usability test questionnaire and interview players when they completed the game.

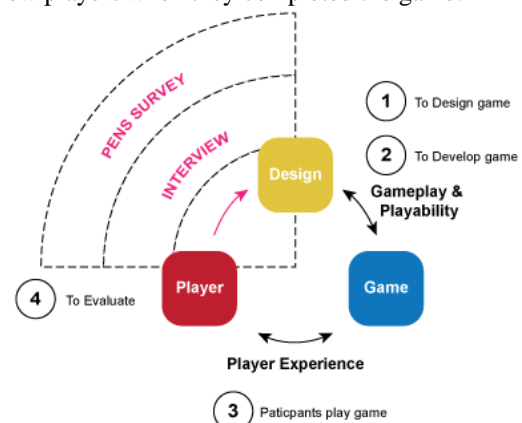


Figure. 02: Research method

1) Lanna food knowledge analysis

The first approach in the research is to analyze related documents and interview experts of Lanna studies about Northern Thai food and then brainstorm among researchers to select a list of Lanna recipes, focused on main dishes, and extract contents to design games. According to Lanna cuisine literature, Narong Sikhiram (2018) states the transfer of Lanna knowledge from the past to the present includes food source of Lanna People, cooking methods, belief and wisdom of food as medication and body balancer, and Lanna's food background and influence from other cultures. Due to the limitation of time and resources to develop the game, researchers prefer to scope the Lanna food knowledge in this game as:

1. The local ingredients and food sources of Lanna People (eg., Figure. 03)
2. The preparation and cooking style of Lanna cuisine (eg., Figure. 04)



Figure. 03: An example of Lanna seasoning ingredients (A and C is the Weaver Ants and their eggs , B and D are Melientha suaveis Pierre)



Figure. 04: An example recipe of Lanna cookery. (This food is cooked from mixing water, curry paste with the main ingredients of Weaver Ants eggs, Melientha suaveis Pierre, shallot, garlic, fermented beans, shrimp paste and fermented fish)

2) Design and development mobile game as virtual cooking

Digital game-based learning (DGBL) is a practical method to design a very appropriate tool to support children's learning. Similar to Aslan, S. (2011) said, when children play the digital game, they are competitive, inquisitive, inspired, persistent, and discover new information. Moreover, the U.S. Department of Education (2010) suggests that DGBL could provide students with more exciting and empowering environments and point out the need to research the following areas: simulations, virtual worlds, and games. It is necessary to create digital game-based learning to enhance children to acquire local ingredients, preparing food and cooking methods. Therefore, this study designed and developed a

Lanna cookery game based on the concept of a virtual kitchen consisting of Lanna recipe menus, including scenarios simulation of step-by-step Lanna cooking styles. Such, the objective of the game is to motivate students to change their perspective of the local subject from ignoring to be interested in learning (Hwang and Wu, 2012; Hainey et al., 2013; Sung et al., 2017) and to encourage their learning and constructing knowledge by themselves (Lee et al., 2016; Merikivi et al., 2017). In short, the functions of the Lanna cooking game are to stimulate the players to observe, practice, and understand the steps of the Lanna cooking process with virtual kitchen scenarios in the game. Also, it will allow them to trial and error (Klopfer et al., 2009) each cooking step to gain the right Lanna food knowledge.

The design prototype of the mobile applications was named LannaCuisineGame (LCG) that simulates a cooking step of traditional foods in Northern Thailand. This game will help players gain further insights from reading books or visiting museums that exhibit only cultural items explained by text, audio, or video clips. The design team starts to create the game architecture that illustrates the all game system consists of three main parts:

1. The game interface presents the game's scenario, allowing children to interact with the cooking simulation gameplay of various recipes.
2. The database of the game comprises the player's information and point and recipe information.
3. The game's report will show all points and achievements that the player has already made in each cuisine and time spent which player plays.

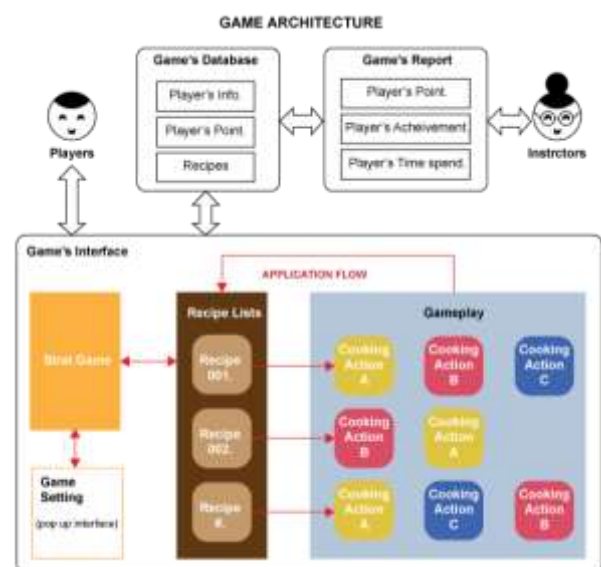


Figure. 05: The Game Architecture
The design team creates the tasks in the game based on the

action of cooking styles. These tasks are steadily increasing from basic cooking to complex cooking. Consequently, the players need to use some skills from some part of the previous recipe to complete another recipe. This feature motivates them to do complex recipes and acquire food knowledge through the gaming process.

The game-based Lanna cuisine learning development using the ATMSG model

The obstacle in this game is related to Lanna's food knowledge, which aims to support children to practice and understand the sequence structure of the cooking process, which is a not complex format of Lanna's cuisine step-by-step. This research uses the ATMSG model as a tool to design and develop a concept and game prototype in the design activity in which a small group that collaborates between the designer, specialist, and instructor are brainstorming to analyze and refine the draft low fidelity prototype of the Lanna food game. There are three development phases that consist of conceptual design, prototype assessment, and discussion sessions, and design refining. The result created and improved by the team of this design process is the practical low-fidelity prototypes and pass on the development stage. The researchers aim to evaluate the experimental prototype by discussing with the students studying the game design program in the university. These outcomes will apply as the critical factor for developing a high-fidelity prototype (Figure. 07), which is the proper blueprint to make the digital game's production on mobile technology.

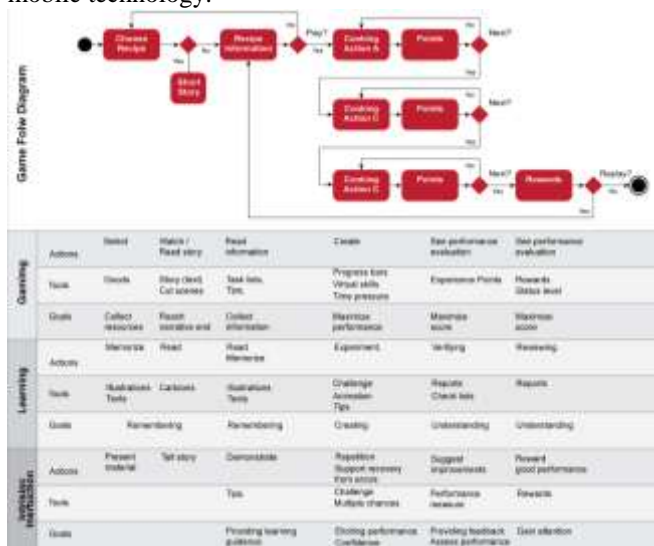


Figure. 06: Game flow diagram and Activity Theory-based Model of Serious Games (ATMSG) models. The prototype game begins with a menu screen where the user can select to play a game or to set a game option. When the players start the game, it takes them to watch the story

narrated about the main character and missions. Then, the game will show the list of Lanna recipes that allowed the player to select one for food experimenting. After that, the players should read the food graphic novel that they chose to understand the food background and read the contents and tips about Lanna's food that the designer inserts in the recipe interface. In the next event, a player can play unlimited food action practice through the Lanna cooking process simulation. A player must use the right ingredients and put them in the correct food action sequence and perfectly cooked. Moreover, they have to finish each step of food preparation and cook, including doing the exact cooking sequence with limited time. The following game flow diagrams (Figure. 06) show how the children use the cooking game.

The graphic game design and development of LannaCuisineGame (LCG)

According to T. A. Ryan and C. B. Schwartz (1956), the speed of an audience to identify a visual image has been effective by the different representation methods (e.g., photographic, shaded drawing, line drawing, and abstracted/cartoon). Notably, the most efficient representation method differs according to the complexity of the forms depicted. The researchers decided to use three-dimensional software and image painting software to create and develop game graphics. The game creation process that includes three-dimension graphics production (the modeling, texturing, and lighting steps) enables the creators to produce more specific detail of three-dimensional graphics (3D graphics) to make the visual interesting create aesthetics for the players (Wattanasoontorn et al., 2019). Additionally, L. Ahearn (2011) states that the four fundamental factors to produce the graphic style that leads the game designers to understand what they see and make a better game graphic style are form, proportion, lighting, and texturing. Therefore, the game designer creates the visual assets into a three-dimensional form using Blender software and Adobe Photoshop, which is the tool to design the color and texture of all 3D assets.

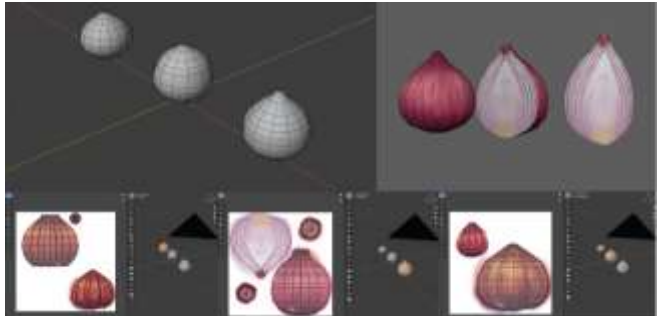


Figure. 07: An Example of 3D Asset Design & Development (Red Onion or Allium ascalonicum)

The Game Development Process of LannaCuisineGame (LCG)

Goals: Goals are what overall conditions of the game state as something that players need to achieve when playing a game. There are two primary kinds of goals: short-term and long-term. Such as the players avoiding the attack by the opponent's piece in short-term goal and the long-term goal is to place the other player's king in checkmate in Chess. So, the goal of the Lanna cuisine game in the short-term is to get a high score for each recipe and the player becomes an expert of Lanna cuisine in the long-term goal.

Gameplay: The researchers analyze and extract Lanna's food

knowledge (ingredients, recipes, preparing methods, and cooking styles) to design the gameplay. Fabricatore, C. (2007) describes the gameplay as the collection of activities carried out by the player and other individuals in the virtual world in reaction to the player's actions or as autonomous courses of action that contribute to the liveliness of the virtual world. As a result, The gameplay is how the players do the activities of preparing food and cooking local cuisine to obtain the highest points and the rewards: ingredients, and utensils, including to unlock new local cuisine to the next game level.

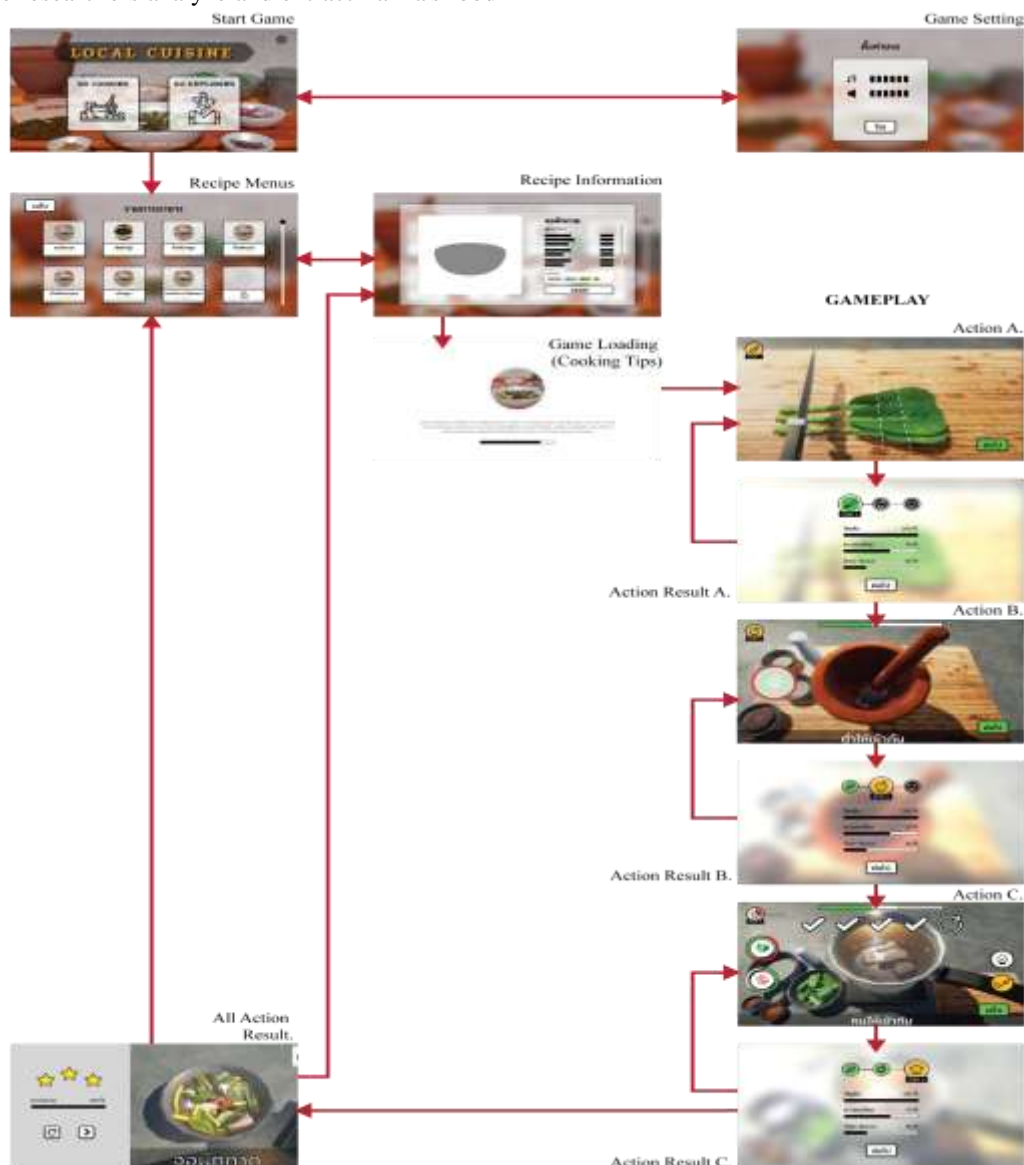


Figure. 08: The Flow of LannaCuiSineGame (LCG) interface

Game Mechanics: Both terms are fundamental concepts to form the gameplay definitions are interactivity and activity.

Fabricatore, C. (2007) states game mechanics are the tools for gameplay or how players interact with the game. The researcher applies the concept from a Lanna food knowledge analysis to design the game mechanics, focusing on the food ingredients, the kitchen utensils, and the cooking style because they are the critical elements of cooking. The food apprentices could learn to estimate the appropriate number of ingredients and learn to use the kitchen utensils to suitably cooking styles for each recipe. For example, the knife is the object mechanic that the player uses to interact with the ingredient to be the cut, slice, chop, hit, or peel. An onion that the designer determines to be game object mechanics is that the player can use the knife to cut onion, use the hand to pick it into the pot, or use the heat to be the cooked onion, including the cooked level is also the object mechanics, especially ingredients.

Game Interface and Flow: The game designers demonstrated the game interfaces in the simulation game scenarios by following the Lanna cooking phase. To earn the highest score, the player must plan and cook Lanna food for each recipe. As learners complete the cuisine, they receive experience and rewards that help them progress through the game's stages. Additionally, the game adds non-player characters who provide guidance, helpful tips, and activity suggestions, including assisting the player as they encounter difficult challenges during the food practice simulation. The example of a cooking simulation workflow using LannaCuisineGame (LCG) is described as follows.

1. The player first chooses a Lanna food menu that interests them, and then reads the recipe to
 - a) obtain the food knowledge and tips. Next, the game system will generate the cooking scenario by sequence
 - b)



Figure. 09: User Interface Design & Development:

2. The food preparing phase is to arrange the ingredients, raw materials, and utensils before cooking. The players use the kitchen tools to do an action with the objects.

- In this scenario (Figure. 09), the players must select the exact ingredients that follow the recipe. They use knives to cut, slice, or chop the pork by using their finger to tap or slide on the screen of a smart mobile device. The game gives the texts feedback to inform the performance level; well, good, excellent, and perfect. The game interface shows and updates the quantity of each preparing ingredient through progression bars.

The following scenario (Figure. 10) allows the player to use mortar and pestle, a set of two simple tools used to prepare ingredients in the kitchen, to crush and grind the mix, e.g., garlic, red onions, soybean fermented, etc., into a fine paste. By using their fingers to touch and hold features, the players select the ingredient, and they drag it at the mortar, then release the fingers to drop it in the mortar. Additionally, the players have to put a component by exact sequence following the recipe. Subsequently, they tap the circle button at the right on the screen to pound as proper rhythm creating curry paste. The game interface shows and updates the progression of through the status bar.



Figure. 10: User Interface Design & Development

3. The last one of the curry food processes is using heat for cooking. This phase allows the player to set fire and control the heat level for cooking. When the fire is already set, the player selects the ingredients prepared at the previous phase and puts them in the pot based on the recipe and tips using the fingers to control the game object like the second phase. The challenges in this stage are the cooking time that the player used affected the cooked levels because each raw material used different times to cook perfectly, such as pork and vegetable. The circle graphic chart represents the cooked level that will appear when the player puts any item in the pot. So, the player should do it carefully. The game interface also shows and updates the cooking status through the progression bar.

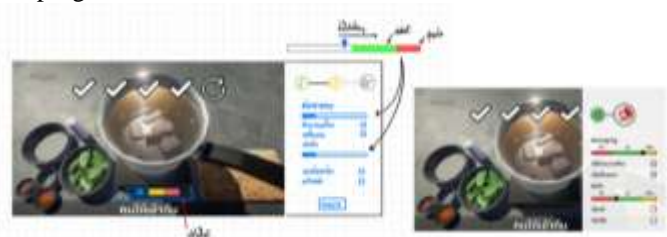


Figure. 11: User Interface Design & Development

V. EXPERIMENTAL DESIGN

a) Participants

The participants were 34 students from a public secondary school in Chiang Mai, Thailand. They are an average age 16, and ages range from 15 to 19 years old and never learned and cooked the Lanna cuisine before, but they had consumed some Lanna dishes. Most of the participants (58.8%) indicate that they sometimes have cooked with their family; 35.3% show that they, not often cooked by themselves, and 5.8% indicate that they often cooked by themselves or with their family. Over 40% of players show that they played games for less than one hour; 20.6% indicated that they played games for two hours, and 29.4% show that they played games for more than three hours.

b) Measurement tools

The researcher observed participants examine the relation of achievement and enjoyable experience while playing the games to capture their behaviors and reactions. When they accomplish the game, they have to answer the questions to the interviewer and assess the motivation of the gameplay experience. This paper used the 21-item Player Experience of Need Satisfaction (PENS) survey (Scott Rigby and Richard Ryan, 2007). The PENS items consisted of statements on a five-point scale ranging from 1 to 5 on a Likert scale (Vagias, Wade M., 2006). There are five dimensions of PENS that evaluates a player's experience:

- Competence: the need behind our love of challenge, this scale measures participants' perception that the game provides a competency.
- Autonomy: the need behind our love of freedom, this scale assesses the degree to which participants felt free, and perceived opportunities to do activities that are interesting to them.
- Relatedness: the need behind our love of connecting, this scale assesses the desire to connect with others in a way that they feel authentic and supportive.
- In game Presence, this scale measures the sense of immersion in the gaming environment. Three items considered are: physical presence, emotional presence and narrative presence.
- In game Intuitive Control (IC), this scale assesses the degree to which participants control their character's actions in the game environment.

c) Experimental procedures

The instructor introduces participants to the information of the LannaCuisineGame (LCG) and provides a sheet describing the activities given to them, followed by completing the general information before starting learning

activities (15 mins). After that, the instructor divides the participants into groups; each group is five players and one staff. The players, then, will play the LCG with smartphones provided by staff. The researchers required the participants to play two rounds of the game. They play freely in the first round, allowing them to understand the game's interface and structure (15 mins). In the second round, the instructor assigns all players to play the same recipe of Lanna cuisine and aims to obtain the highest score (15 mins). Each round, there is staff to observe players and note to collect data. Participants played approximately 30 minutes in total and completed a Player Experience Needs Satisfaction (PENS) questionnaire online after the game finished (20 mins). Lastly and most importantly, the researcher team interviews players to obtain qualitative data.

VI. RESEARCH RESULTS

Results of game development

The designer team decided to install LannaCuisineGame on smartphones and tablets. The Lanna cuisine game's visual style used three-dimensional software, creating graphics and illustrations that are not realistic but cartoon-style, which is forming the 3D objects and painting on their surface to create materials and textures. Experts agreed that the cartoon or fantasy style is suitable for children because it will attract their attention, focusing on content and building creativity. Similarly, the current education media used cartoon and fantasy styles to be the art direction of the visual graphic design and narrative illustrations. The result found that each traditional cuisine had a different mood and tone depending on its background, food resource, flavor, etc. So, the concept of mood and tone to create the Lanna food game graphic, which was designed for children, was a warm and soft color to make an enjoyable casual image, including using the earth tone to create an ambient Lanna in the kitchen simulation according to the experts' opinion.

1) The game layout design that shows how the game display to users is divided into three sections. In the first section, the interaction is where players can interact with game objects and the virtual buttons to control the game as they want to do under the game rules. Second, the user interface part consists of the text, illustrations, graphics, and animation, which provide the instructions, narrate the stories, show updated object status, and report the feedback to the players. The last section is the game environment that enhances the player's immersion with Lanna cooking by kitchen simulation and ambient simulation.

a) In the game design, The gameplay is how the players prepare food and cook local cuisine to obtain the highest

points and the rewards: ingredients and utensils, including to unlock new local cuisine to the next game level. The goal of the Lanna cuisine game is to get a high score for each recipe, and the player becomes the Lanna cuisine chef. The game rules are to do sequence activities, use the kitchen utensils that suited the cooking type, select to mix absolutely the ingredients and do the cooked well. The researcher applies the concept from a Lanna food knowledge analysis to design the game mechanics, focusing on the food ingredients, the kitchen utensils, and the cooking style because they are the critical elements of cooking. Consequently, the mechanics in this game divide into two types. One is ingredient mechanics, which can be measured, cooked well (or inadequate), separated, and transformed. The other one is kitchen utensil mechanics, which players can use followed a function that simulates from the real world.

Results of motivation (PENS)

According to the 34 participants' survey answers, the majority scored the game applications positively, showing that they were satisfied with LCG. The PENS survey consists of five sub-scales containing twenty-one objects, and the summary descriptive statistics show in Figures 12 and 13.

The intrinsic need to feel effective in what we do can be described as competence. Participants nearly 45% agree the C1 and C2 item makes them feel competent, very capable and effective when playing the game. One-third of the participants agreed with the C3 item that their abilities are suitable for the game challenge, equal to the numbers of the players indicating that they are undecided to agree or disagree.

Autonomy is the experience of choice in one's decisions and actions freely. When someone is able to make their own choices and pursue their interests, they are more energized and motivated to do the things they like. The average number of the participant's agreement (35.29%) and strong agreement (41.17%) is relatively close for all items in the autonomy of playing the game.

The intrinsic need to communicate with others in a way that feels authentic and supportive must be described as relatedness. The graph of Relatedness of the PENS shows the aggregate of participants that disagree and undecided to agree or disagree on the R3 item (I don't feel close to other players (-)) is more than 60%. Half of the participants (55.88%) undecided to agree nor disagree on the R1 item (I find the relationships I form in this game fulfilling). Opposite to the R2 item, 44.12% of participants indicate that they find the relationships they form in this game necessary.

Intuitive control is the experience of the user to control character and object in the game to do something in the game environment. All three intuitive control items show a high average score of 40% of the participants undecided to agree

or disagree with effectiveness to control the game, followed by the topic that they agree that intuitive control of the game is an average score of 28.4%.

There are five items (P2, P5, P6, P7, and P8) that the participants decided to agree with the Presence and Immersion of the PENS bar charts. The highest number (44.12%) of the graphs is the game was emotionally engaging (P5) to players. Followed by the two items, the P2 as to explore the game world feels like taking an actual trip to a new place, and the P8 is the players experienced genuine pride when they accomplished something in the game which both of its show the number of participants agreeing is 35.29%. The last two items, the P6 is the players experience feelings as deeply in the game as they have in real life, and the P7 is the players feel as if I was part of the story when playing the game which the couple shows the number of participants agreeing is 29.41%.

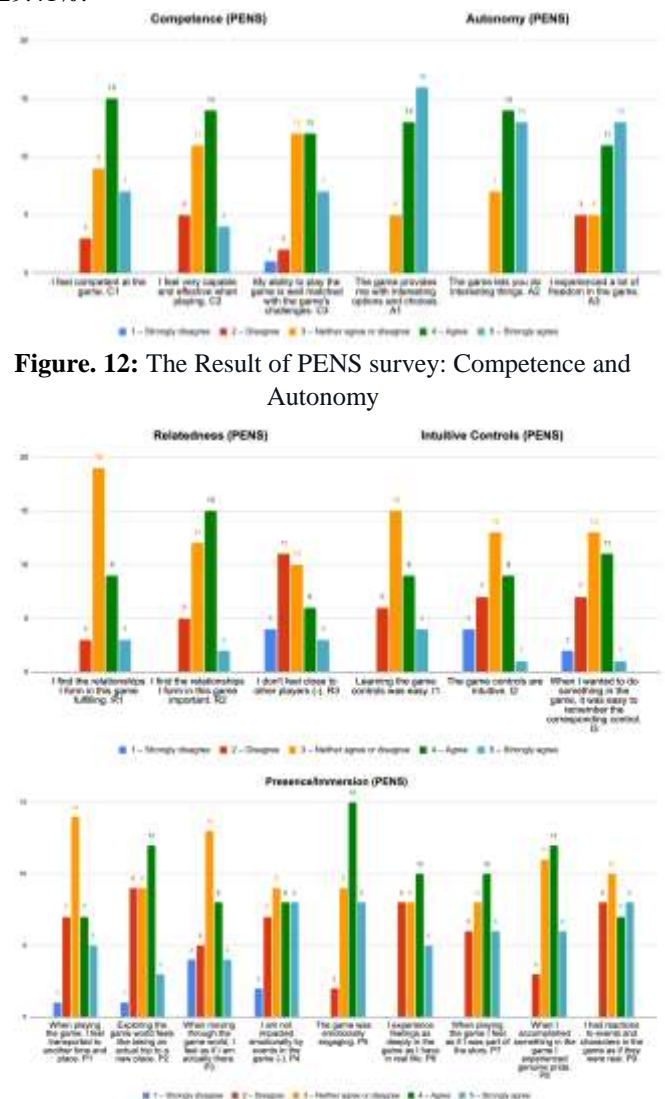


Figure. 12: The Result of PENS survey: Competence and Autonomy

Figure. 13: The Result of PENS survey: Relatedness, Intuitive control, and Presence

The Player feedback

The researcher also gathered participants' feedback through an interview following their participation in the LannaCuisineGame. When they used the simulation game to practice and create Lanna food, most children provided several positive feedback. They highly give information and express the experiences about the cooking simulation feature which was attractive to them and spoke about the three-dimensional graphic style consisting of specific details of unique Lanna food ingredients which create visual interest and aesthetics to them. They intended to create perfect cuisine to gain the maximum points and show their level of cooking performance to compete with each other for fun. During the user play, the observers found that the players share the information with each other for cooking better. The learners preferred to use the game to practice before real cooking because the game provides a list and number of ingredients, the food preparation sequence, and traditional tips. The interviewers also asked the participant's suggestions for the future features that they would like to see in the next version of LannaCuisineGame. One suggested adding more exciting cooking animations, especially the exaggeration after the player breaks the game rules. When the player extremely pounds the ingredients with a pestle, the ingredients are extremely bounced off. Another one is to apply the cute cartoon style to be the concept of game graphics design. Some participants also suggested the feedback feature that reports the delicious measure point for each cuisine that the player finished. The delicious can identify that the food is cooking well. At the end of the useability test activity, many users said they would like to download LannaCuisineGame if uploaded to online app stores.

VII. DISCUSSIONS

The main objective of this study is to provide a learning game for children that have to design by the method of identifying and classifying local ingredients and break down the traditional cooking sequence from Lanna cuisine. The researchers use the ATMSG model (Carvalho et al., 2015) to define how to develop a digital learning environment based on the simulated Lanna cooking scenario and appropriately identify and match critical factors, gaming components, and learning components to develop food learning games for children.

Following the literature review and the output of the developed game prototype, the game designers must consider the principles of game development and several essential

elements. The comic story, which narrates about Lanna's food knowledge in games, performs as the media to communicate the content, such as a food background, a food resource, a cooking method, etc. On the other hand, the gameplay performs as the practice and the evaluation gives the students a learning scenario for acquiring the targeted knowledge via practicing the virtual cookery with all game elements. Similar to the previous studies report (Ash, 2011; Shaffer, 2006; Rupp, 2010), which indicated the games always provide a formal and informal assessment of players' knowledge and abilities. Additionally, The game integrated the cooking guides with a progress bar to balance between guidance and play freely. Because the freedom to learn is essential, the Lanna cuisine game allows them to make mistakes (Groff et al. 2010) in every cooking step, and they can always replay again. Not only does the game assist learners, but it also motivates them to remain active learners. Similarly, prior research has shown that games will inspire learners and provide them with a better way to explore the learning environment by task completion (Plass et al., 2015; Jabbar and Felicia, 2015). Moreover, a time limit game mechanism adds to increase the game's complexity and challenge. The participants in the study gave quite positive feedback on the game design, and a few of them reflected that they would apply their food practicing experience to real life.

Typically, the new generation in Thailand, most of them play the game created by the other countries, e.g., Japan, Korea, America. As a result, they have given that cultural influence and are familiar with the internationalization of graphic games. However, the designers all agree on the advice of experts that the uniqueness of the Lanna style could apply to graphic game design, which appeals to children. They created graphic games referring to the Lanna cooking context, such as cooking, kitchen utensils, ingredients, etc. In addition, they design the character to stimulate learners' motivation and curiosity. The results are consistent with those of the previous studies (Gee, 2003; Prensky, M., 2007) which points out the alternative of teaching through interactive video games in digital environments, particularly virtual environments, has the distinct advantage of making it easy for students to learn, think, understand, and practice. The rich graphics increased the students' understanding and skill in performance has made it easier for them to improve their performance.

VIII. CONCLUSION

This study describes the first mobile game-based learning of Lanna cuisine, which received positive feedback from participants. It examines the aspects of game playing that might help children learn more effectively. The combination of mobile technology, the serious game model, and the

game-based learning method generates enthusiasm and motivation for children who have grown up in the digital age to learn the traditional techniques of Lanna cooking in an enjoyable approach outside the classroom. The application will benefit more Thai children, especially the new Lanna generation. Creators believe this innovative pedagogical approach to transmitting the other cultural content makes learning fun. Anybody learns the best when they are having pleasure.

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An Economic Feasibility of the Commercial Community Products of Sainoi Bang Ban, Phra Nakhon Si Ayutthaya Province

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Abstract— Support from public and private sectors in pushing community products to sustainability requires the results of an economic feasibility analysis that takes into account economic risks. This research is quantitative research aimed to analyze economic feasibility and the sensitivity of the commercial community product to use as a basis for academic reference in developing and extending products to create career stability and income. As well as choosing the most cost-effective resources following the economic guidelines. A structural questionnaire was used with 5 product entrepreneurs of Sai Noi BangBan, Phra Nakhon Si Ayutthaya province. The results of the study were as follows: 1) Thepnakha Drinking Water Community Enterprise Group has Economic Value for investment that is Economic Net Present Value is 479,011.08 baht, Economic Benefit-Cost Ratio (EB / C Ratio) is 1.07 times and Economic Internal Rate of Return (EIRR) is 17% and can payback period within 6 years has the potential to resist impact for income changes with 6% and cost changes 15%. 2) Sainoi Homestay Ecotourism Village It is economical to invest, that is ENPV is 195,616.33 baht, EB / C Ratio is 1.38 times and EIRR is 54% and can payback period within 2 years has the potential to resist impact for income changes with 15%. 3) Takala for health found that Economic Value for investment is as follows: The ENPV = 528,431.09 baht, EB / C Ratio is 1.44 times and EIRR is 8.7 times and can payback period within 0.2 years has the potential to resist the impact of change in income and cost changes more than 15%, while 4) The Banana Processing Group and 5) The Natural material Processing Group, that is not worth the investment when considering the economics. Research results are returned to the community to guide sustainable commercial product development.

Keywords— Economic Feasibility, Sensibility Analysis, Community Products, Phra Nakhon Si Ayutthaya Province

I. INTRODUCTION

Community enterprise development is one of the methods for solving people's poverty and is the way to create a sustainable economy, society, and community because it encourages the community to use local resources so that they can be self-sufficiency in the long run. Small and Micro Community Enterprise (SMCE) is the creative management of community capital for self-sufficiency, where community capital includes resources, agricultural products, knowledge, wisdom, culture, local traditions, and government agencies are important units of community enterprise development both in terms of knowledge development of different skills various, marketing support and regulation to support community enterprises. [1][2]

However, the promotion and development of entrepreneurs in managing local wisdom and creating innovations, promoting

and developing product standards from local wisdom, and promoting community marketing channels to international standards are still a problem at present as community enterprises still face problems that should be addressed accelerate development such as production problems unable to produce in time when large orders, lack of labor, high production costs due to the economies of scale, shortage of modern production technology, marketing problems, lack of branding and lack of good packaging, lack of modern product design, no distribution channel through e-commerce or a variety of distribution channels, lack of publicity and promotion, as well as problems with product imitations, problems with continuity in supporting budgets from relevant agencies, and problems in waste management as well as legal measures, etc. [3] [4] [5] [6] [7] [8] [9] However, the above problems will not arise if, before the implementation of the project by the community itself, or before the implementation of the project from the public or private sectors, the economic feasibility is analyzed, both with and without a comprehensive

project. Then it will play a part in reducing the problem of developing community enterprises or community products that cannot go towards sustainability. Sai Noi Community, Bang Ban District, Phra Nakhon Si Ayutthaya Province is another community that has been continuously supported by government and private agencies due to its abundant community resources, unique way of life, suitable for learning and transferring such as Making Thai desserts, Mon bricks, and healthy coconut shells and the processing of agricultural products by community products that are said to have a variety of products, both grouped into community enterprises and housewives such as Thep Nakha Drinking Water Community Enterprise Group, Sai Noi Homestay Ecotourism Village, etc., but found that the supported projects still lack commercial investment worthwhile analysis. As a result, some products, once implemented, cannot create sustainable careers and incomes for the community. Therefore, before the support from government agencies and the private sector in pushing community products towards sustainability, it is necessary to start from an economic feasibility analysis that takes into account the economic risks of community products before proposing is therefore important of this research.

II. RESEARCH OBJECTIVES

- 1) To analyze the economic feasibility of commercial community product production
- 2) To analyze the sensitivity of commercial community products

III. LITERATURE REVIEW

The production and distribution of products have considered the concept of the production cycle which consists of a group of business activities related to the production of goods such as product design, planning and scheduling, production operation, and cost accounting in the collection of production costs uses the composition of costs classified by the nature of the components of the product 3 types are Direct Materials, Direct Labor, and Overhead as follows: 1) Direct Materials are the main raw materials used in production and can be identified in the quantity and cost of the production of a particular product and are classified as the majority of raw materials used in production. 2) Direct Labor is the wages paid to employees directly involved in the production of finished goods and is an important part of the wages for processing raw materials into finished goods. 3) Production costs (Overhead) are expenses related to the production of goods other than direct raw materials and direct labor costs. [10][11] Economic Feasibility Study is the study of economic feasibility based on the pricing of benefit and cost based on the efficiency of resource utilization for production. The price

used is called "efficiency price" and the collective analysis is called "Economic Cost-Benefit Analysis". [12]

Project sensitivity analysis is a method of analyzing the best future outcomes from related events by calculating the rate of return on project investment under risk and uncertainty but can estimate probabilities (Probability or expected value) where risk events and economic uncertainties may affect investment decisions, therefore, the sensitivity analysis of the project is required are 1) costs increased by 5, 10 and 15 percent while fixed income 2) revenue decreased by 5, 10 and 15 percent while fixed costs and 3) revenue decreased by 5, 10 and 15 percent, while costs increased by 5, 10, and 15 percent. [13]

The benefit of sensitivity analysis is to identify variables that cause volatility, the net return of a project to help assess the project more efficiently and that assessment should consider whether the return or benefit derived from the decision is worth enough to offset any potential risks.

IV. RESEARCH METHODS

Data Collection

In-depth Interview with Key Informants by using a specific selection method (Purposive Sampling) with the chairman of the main product group of Sai Noi Community, Bang Ban District, Phra Nakhon Si Ayutthaya Province, 5 people are the group leader of 1) Thepnakha Drinking Water Community Enterprise Group 2) Sainoi Homestay Ecotourism Village 3) Takala for health 4) The Banana Processing Group and 5) The Natural material Processing Group

Structural Questionnaire consists of quantitative and qualitative questions that are both open-ended and closed-ended questions are divided into two parts: 1) Information about community products and 2) Information about costs and returns on product production.

The tool test was a validity test by 5 experts and used to determine the Index of congruence (IOC) by improving and selecting questions with an IOC value greater than 0.5 to be used as a question. [12] and find the reliability by using the questionnaire to test with product groups in other areas (Try out) amounting to 30 cases and then analyzed for the total reliability using Cronbach's alpha method. [12] by using acceptance criteria of more than 0.70 from the test, it was found that the total reliability level was at 0.8783, which was higher than the acceptance criteria.

Data analysis

Economic Net Present Value: NPV is the present value of the project's net return or cash flow taking into account the opportunity cost of 1.15% fixed deposit, calculated over the

project lifecycle from 2013 to 2019 (before the Covid 19 crisis) using a discount rate of 7%

[11] The formula used for the calculation as follows:

$$ENPV = \sum_{t=0}^n \frac{(B_t - C_t)}{(1+r)^t}$$

Here

ENPV	means	Net present value
B _t	means	Benefit value in year t
C _t	means	Cost value in year t
r	means	Appropriate discount rate or interest rate
t	means	Project duration from year 0, 1, 2, ..., n
n	means	Project life (years)

The NPV value should be greater than 0.

Economic Benefit Cost Ratio (BCR) is the ratio between the present value of the return flow and the present value of the cost stream over the project life from 2013 to 2019. The formula is used to calculate as follows:

$$BCR = \frac{\sum_{t=0}^n \frac{B_t}{(1+r)^t}}{\sum_{t=0}^n \frac{C_t}{(1+r)^t}}$$

BCR should be greater than or equal to 1.

Internal Rate of Return (IRR) is the rate of return of a project in which the present value of costs and the present value of investment project expenses equal the present value of the investment project expenditure, which is the rate of return that makes it break even. The formula is used to calculate as follows:

$$\sum_{t=0}^n \frac{(B_t - C_t)}{(1+r)^t} = 0$$

The IRR should be greater than the opportunity cost (7% in the case of high interest on a Thai state bank's prime loan).

V. RESEARCH RESULTS

The economic feasibility analysis of 5 main products in Sai Noi community found that 1) Thepnakha Drinking Water Community Enterprise Group 2) Sainoi Homestay Ecotourism Village and 3) Takala for health it is economically worthwhile to invest when analyzing economic feasibility taking into account economic sensitivity, but 4) The Banana Processing Group and 5) The Natural material

Processing Group Not worth the investment considering the economics. Details as follows

1) *Thepnakha Drinking Water Community Enterprise Group* using a water filtration system with R.O. (Reverse Osmosis) system with the selling point is the taste of drinking water is similar to "rainwater", which is a particular favorite of the people in Phra Nakhon Si Ayutthaya Province. The R.O. water filtration system is a filtration system using a membrane with a resolution of 0.0001 microns, which makes the solution. , contaminants, including various pathogens larger than the pores of the membrane, the membrane cannot penetrate through it, only pure water molecules can pass through the solution and are separated from the bile and eliminated from the system to prevent residual and accumulation within the diaphragm with a water filtration plant illustration. Figure 1

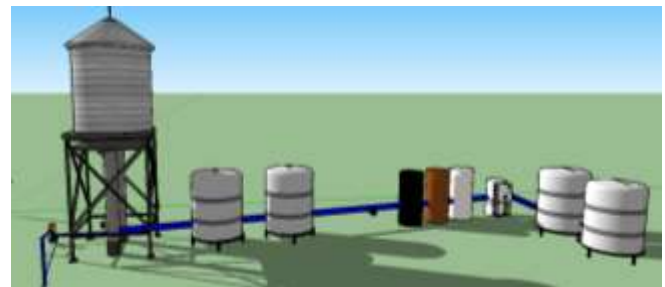


Figure 1 R.O. model of Thep Naka drinking water filtration plant

The cost of producing drinking water Thep Nakha

Number of drinking water production for sale

48,761.40 liters

Cost of electricity and chemicals 38,600.00 baht

Cost of producing 1 liter of water 0.79 baht, Able to calculate total variable cost per bottle size equal to 2.70, 3.17, 3.30, 3.42, and 0.87 baht per bottle of 350 cc, 500 cc, 600 cc, 750 cc, and a glass of 220 cc, respectively. The selling price per unit is 4, 3, 5, 3, baht per bottle, 350 cc (40 baht/ pack), 500 cc (35 baht/ pack), 600 cc (55 baht/ pack), 750 cc (40 baht/ pack), and 220 c glass. C (65 baht/ box), respectively.



Figure 2 Example of Thep Nakha drinking water products Economic Feasibility Analysis in without Project is to produce drinking water in glass and bottles according to the minimum order per month as follows: Size 350 cc, 800 packs, 500 cc. 200 packs, 600 cc., 850 packs, 750 cc., 200 packs and 375 cartons of 220 cc glass. It was found that it was economically feasible to invest. Economic Net Present Value is 479,011.08 Economic Benefit Cost Ratio is 1.07 times and Economic Internal Rate of Return is 17 % and can payback within 6 years (Discount Payback Period is 5.83) by If there is a project, if the business follows the advice by choosing to pump water during the Off-peak period (from 22.00 – 08.30 hrs.) and produces drinking water in a minimum quantity, it will result in savings per unit of cost from 0.79 baht, remaining 0.22 baht found that it was economically feasible to invest. Economic Net Present Value is 1,152,451.35 baht, Economic Benefit Cost Ratio is 1.23 times, and Economic Internal Rate of Return is 47%, the payback period is 4 and a half years (Discount Payback Period is 4.35).

Table 1 The results of the sensitivity analysis of Thep Nakha Drinking Water Community Enterprise

List	Without project			With project		
	ENPV	EBCR	EIRR	ENPV	EBCR	EIRR
Base year	479,011.08	1.07	17%	1,152,451.35	1.23	47%
Costs increased by 3 % and returns decreased by 5%	(1,255,750.00)	0.82	-28%	585,818.86	1.11	25%
Costs increased by 10% and returns decreased by 10%				19,186.37	1.00	8%
Costs increased by 15% and returns decreased by 15%				(547,446.13)	0.91	-7%
The level that the business can accept Costs increased by 15% and returns decreased by 6%				14,383.43	1.00	7%

The Sensibility Analysis found that Thep Nakha Drinking Water Community Enterprise Group is a worthwhile commercial investment considering the economic risks if management is adjusted as recommended. In the case of having a project, it will result in the business having the potential to resist the impact of the change in selling prices (revenues can be reduced by up to 6%) and the cost of change (prices of production factors, prices of electricity, chemicals, packaging increases up to 15 percent). If the business is operating according to recommendations, it will increase the business's competitiveness (a 6 percent increase in returns and a 15 percent reduction in production costs).

2) Sainoi Homestay Ecotourism Village

Homestay Sai Noi offers homestay activities which consist of staying in a traditional Thai house, learning a local lifestyle and cooking with the owner of the house, giving alms to monks in the morning, learn how to make Thai desserts, practice and learn to pack drinking water, making sandalwood flowers, farming, growing vegetables, agriculture, study and learn about ancient sites, religion, history, art and culture, language exchange. Sai Noi Homestay has passed the Thai homestay accreditation standard since 2009 until now, with a total of 15 households, it can accommodate up to 270 guests, It covers the area of villages 1-10 in Tambon Sai Noi, Bang Ban District.

Cost of opening a house

Number of services 192 people/year

Room compensation 250 baht/person/night

The results of economic feasibility analysis without Project revealed that there is the economic feasibility of investment. Economic Net Present Value is 195,616.33 baht, Economic Benefit Cost Ratio is 1.38 times and Economic Internal Rate of Return is 54%, can payback within 2 and a half years (Discount Payback Period is 1.66).

From the survey area, two approaches to homestay service can be synthesized. *The first approach* is to change the service from sharing accommodation with homeowners to provide a private home, which can serve 4-6 tourists per house, maintaining the same service characteristics in all respects, just that customers will receive privacy, which will be charged an additional 450 baht per person from the same service nights and *The second approach* will continue to offer shared accommodation with landlords but will add one more private house, each of which will accommodate four to six tourists each by maintaining the same service characteristics in all respects, only customers will receive privacy, which will be charged an additional 450 baht per person per night from the same service, that is, the second approach is to target customers to 2 targets are customers who only want cheap overnight accommodations and customers who want

eco-tourism and privacy who agree to stay at a higher price. This will result in the business owner, the homeowner, creating more income opportunities as an example of a house in the **Figure 3**



Figure 3 Example of a private house

In the case of a project, there are 3 types of guidelines as follows: 1) providing accommodation with a homeowner (according to the Thai homestay standard), 2) providing a private house, and 3) providing a shared accommodation with a homeowner and private houses found that investment in homestay services in Sai Noi, Bang Ban in all 3 approaches is economically feasible for investment. Economic Net Present Value greater than 0, Economic Benefit-Cost Ratio greater than 1, and Economic Internal Rate of Return greater than 7% return on capital utilization and can payback within 6 years.

Table 2 Results of Sensitivity Analysis of Sai Noi Homestay

List	Costs increased and returns decreased		
	5%	10%	15%
Without project			
ENPV	36,612.96	19,726.31	2,839.66
EBCR	1.25	1.13	1.02
EIRR	38%	23%	9%
With project (house with owner)			
ENPV	46,220.32	25,182.34	4,739.51
EBCR	1.24	1.13	1.02
EIRR	55%	42%	28%
With project (private house)			
ENPV	80,756.73	(10,316.87)	(101,390.47)
EBCR	1.09	0.99	0.89
EIRR	10%	7%	4%
With project (shared house with owner and private house)			
ENPV	224,104.83	50,822.29	(60,153.19)
EBCR	1.22	1.05	0.95
EIRR	14%	9%	5%

The results of the **sensitivity analysis** revealed that Sai Noi Homestay, Bangban is a worthwhile commercial investment considering the economic risks if there is a change in marketing planning and management strategy according to Thai homestay standards. As a result, the business has the

potential to resist the impact of changes in selling prices (revenues can be reduced by up to 15%) and cost changes. (Factory price increases by up to 15 percent) shows that if the business is adjusted according to the recommendations, it will increase the business's competitiveness (15 percent increase in return and 15 percent reduction in production costs).

3) Takala for health

Ta Kala for health It is the use of local wisdom to add value to natural scraps that are not being utilized, that is, to add value from shell scraps worth 3 baht per piece to 379 baht per unit (Finger 4) by a fixed cost of the investment at the first is 16,386.30 baht and the average variable cost per year per production of 1,200 pieces is 312,258.14 baht, the average cost per piece is 262.90 baht, the selling price is 379 baht per piece.



Figure 4 Characteristics of Takala products

The results of **economic feasibility analysis** found that investing in Ta Kala for health production has economic potential results in investment are Economic Net Present Value of 528,431.09 baht, Economic Benefit Cost Ratio of 1.44 times and Economic Internal Rate of Return of 8.7 times, indicating that Ta Kala for health can operate business as usual by producing 1,200 pieces of Ta Kala for health per year, sold for 379 baht per unit and can pay back within 2 and a half months (Discount Payback Period is 0.21).

Table 3 The results of the sensitivity analysis of Takala

List	Returns decreased		
	5%	10%	15%
Without project			
ENPV	380,575.10	232,719.10	84,863.10
EBCR	1.30	1.17	1.06
EIRR	605%	364%	142%

The **sensitivity analysis** revealed that Takala for health is economically viable and has the potential to withstand the impact of changes in selling prices (up to 15%) and cost changes (the price of inputs up to 15 percent).

4) The Banana Processing Group

The banana processors group classified into 2 groups as follows: 1) *Cavendish banana*, it was found that the cost of producing processed bananas (Only those that are out of grade)

Production amount 1,200 bags/year

Selling price 10 baht/bag

Unit cost 26.81 baht/bag

The results of the **economic feasibility analysis** revealed that the investment in banana production degraded in processing had the result that there was no economic feasibility of the investment, i.e. Economic Net Present Value was less than 0 (-33,386.73 baht), Benefit-Cost Ratio less than 1 (0.50 times) indicates that the processed banana products are out of grade, which unable to run business considering the production capacity of 1,200 bags of processed bananas per year are sold for 10 baht per unit due to the cost per unit of 26.81 baht.

And 2) *Pisang Awak banana*, the cost of producing the Pisang Awak banana chips

Production volume 4,800 bags/year

Sold per bag, 8 baht/bag

Average cost 7.73 baht/bag

The results of **economic feasibility analysis** found that investing in the production of Pisang Awak banana chips, there is no economic feasibility of investment are Economic Net Present Value is less than 0 (-24,757.00 baht), Economic Benefit Cost Ratio is less than 1 (0.80 times). Not taking into account the fixed costs and not considering the value of the bananas produced by the farmers themselves. As a result, the selling price of the processed banana products was wrong. Including agriculture, it is seen as adding value to "Bananas are out of grade" which cannot be sold and must be given for free. However, the research team conducted a comparative analysis of the case of processing into other products, such as Khanom Khao Tom Mud, found that the yield was better by comparison. Therefore, the results of the analysis are returned to the community as an alternative to consider adding value to "Bananas are out of grade" next.

5) The Natural material Processing Group

Cost of making artificial flowers (funeral wood flower)

Single funeral wood flower 1,000 flowers

Selling price 3 baht/flower

Unit cost 3.69 baht/flower

Economic feasibility analysis results was found that the investment in transforming natural materials into funeral wood flower was not available for sale due to the entrepreneurs being volunteers, so they produced for donations and were not sold commercially. As a result, when

analyzing the feasibility of commercial economics, therefore, it is not worth the investment.

From the contextual analysis, the area can make recommendations as follows: 1) Entrepreneurs should consider setting the selling price at 4 baht per unit (market price 5 baht per unit. At present, coffin shops are promoting, procuring, and selling funeral wood flowers, making it difficult to operate commercially. 2) Sunk costs should be considered due to occasional procurements, unstable costs, and belief in the production of goods (producing funeral wood flowers in the home will result in the death of the occupants of the house, etc.), and 3) there should be taking into account the sales mix because they do not produce and sell a single product.

VI. DISCUSSIONS

An analysis of the economic feasibility and sensitivity of the above 5 commercial community products found that Thep Nakha Drinking Water Community Enterprise Group, Sai Noi Homestay Ecotourism Village, and Healthy Takala are economically feasible and worth the investment. When considering the economic sensitivity in terms of cost and income changes, this is consistent with several studies in Thailand looking at the development of community products that are close to all 3 products, such as: In the case of community drinking water, it is found that it is possible to invest when choosing Reverse Osmosis (RO) system with a net present value of 107,888 baht, a return to cost ratio of 1.15, a projected return of 10.3, and a payback period of 7 years and 10 months shows [15] In the case of homestay accommodation products, it is found that there is a high probability of commercial business operation when study the feasibility of expanding the Homestay business by analyzing the overall business operation in term of environmental factors including internal and external factors [16] When considering the feasibility of the homestay project, it was found that the project was worth the investment. The net present value (NPV) is greater than 0 (15,170,823 baht), the project's internal rate of return (IRR) is 82%, above the cost of financing (WACC) of 15%, and the payback period (PB) is 1.5 years, which Less than what the company had set the target (3 years) shows the attractiveness and worthiness of the investment. [17] In particular, homestays with separate accommodation sections are particularly attractive. [18] And should focus on the potential analysis because it will affect the success of operations in terms of economic, social, and environmental. [19] [20] and the case of product development from coconut shell according to the creative economy resulted in an increase in revenue from the previous 20%. [21] In particular, health promotion innovations from coconut shell

or local waste materials are used to lead to sustainable communities. [22]

Building stability and sustainability of community enterprises requires cooperation from various sectors both public and private, community participation by returning information to the community, methods for creating occupational and income stability, the potential of community, and resource capacity [2] [4][19] [22] [23]

VII. CONCLUSION

Community enterprise development is one of the tools used by the government to solve people's poverty by allocating budgets to upgrade products to push community products to the international market. But without an analysis of the economic feasibility or cost-effectiveness of commercial investment taking into account risks and uncertainties, would lead to unsustainability in the future. That is the problem of community enterprise development at present. That is, people are encouraged to collectively produce new products without analyzing the market feasibility of "producing, but not actually selling" or "not being worth it" because of the lack of comprehensive economic analysis of the economy, society, environment, and culture, which are the first tools that should be picked up before creating an action plan for supporting the budget for the most efficient use of resources and to be the foundation of a good process towards sustainability of the fundamental economy.

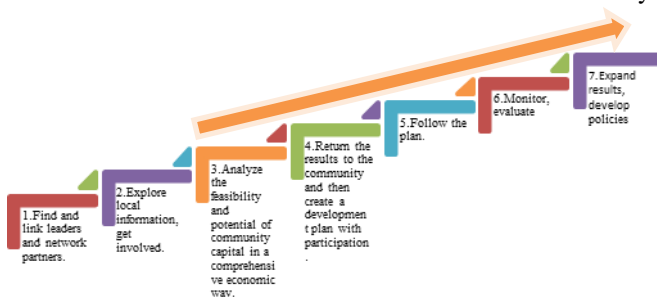


Figure 5 Fundamental economic development based on comprehensive economic analysis.

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A Study of Factors Affecting Consuming and Saving Behaviors of Educational Personnel from Schools in Suphanburi Province

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Abstract— The objectives of this study are 1) to study consuming and saving behaviors of educational personnel from schools in Suphanburi. And 2) to analyze personal factors and economic factors that affect saving behaviors. The ‘Cluster Sampling’ is used whereas educational personnel from 150 people from schools in Suphanburi Province. The statistics used for data analysis were frequency, percentage, mean, standard deviation, and multiple regression analysis. The study shows: 1) The average income of the sample is 22,566.67 baht per month. Their average expense is 7,188.33 baht per month. The side of the average Liability is 3,254.67 baht per month and the average total asset per household is 1,853,071.33 baht. The majority of the sample’s the most expenditure is for food. Then for saving what are left from their monthly expenses. The objective of saving was usually for the future expenditure. The saving methods were deposit with the commercial banks, state banks, and other financial institutions. Purchasing household items was the factor that has the most influence on consumption and income per month was the factor that has the greatest influence on savings. 2) Personal factors were age, education and number of children that affect saving behaviors. In terms of economic factors, income affected the saving behaviors of educational personnel from schools in Suphanburi significantly at 0.05 in statistic.

Keywords— consuming and saving behaviors, personal factors, economic factors

I. INTRODUCTION

With the current volatile economic conditions of Thailand relating to the fuel price, exchange rate, and prices of consumer products that result in higher cost of living and swift changes in living environment, society, environment, economy, and advancement of technology which led into modernity concept of capitalism. As a result, Thai society is becoming a learning society welcoming new cultures. And most importantly, Thai society is transforming into capitalization. Consumers have extravagant spending habits. The consequences of people in society falling under such a doctrine of consumerism causing Thai society and its people many problems such as importing more luxury goods, people are dominated by materialism led to increasing unpayable debt as demand increases. Unbalanced demand and income where consumers cannot afford their buying behavior could result in suffering with more debt to pay off the existing debt which led to a bigger problem that Thai society is now handling. Education personnel as a community in the nation and a medium of initiation, learning, and shaping younger generations into desirable resources to the community also

facing this crisis from various causes. The only income they make is from their monthly salary [15] but are accountable to multiple expenses occurred higher than income such as food, accommodation, transportation, child support, apparels, socialization, etc. From the mentioned pain points, it is shown that financial plan is an important start to determine their lives directions on making more income and limiting expenses. Insufficient income could lead to rising debt. However, planning cash flow could restrain the financial crisis. Education personnel and consumers in general ought to take uncertainties and unforeseeable risk into account. Saving is one of the options to allocate income and expense for the mentioned circumstances [25]

Table 1 Personal Income and Savings

		2556	2557	2558	2559	2560
Disposable Personal Income	Total (Million Baht)	7,218,689	7,477,321	7,559,915	7,925,142	8,312,890
	Average per person (Baht)	108,137	111,597	112,439	117,488	122,874
Personal Outlay	Total (Million Baht)	7,702,699	7,848,764	8,174,708	8,504,884	9,059,790
	Average per person (Baht)	115,388	117,140	121,582	126,616	133,914
Personal Savings	Total (Million Baht)	600,873	675,003	682,889	809,279	927,913
	Average per person (Baht)	9,001	10,074	10,517	11,997	13,716
Percentage of Personal Savings to Income		8.3	9.0	9.0	10.2	11.2
Net Savings (Million Baht)		1,470,908	1,447,439	1,553,834	1,905,471	2,335,400
Gross Domestic Product (GDP) (Million Baht)		9,142,087	9,232,084	9,521,408	9,840,994	10,237,003
Percentage of Saving to GDP		16.1	15.7	16.3	19.4	22.8

Source: [18]

Study shows the savings rate of Thai people is exceptionally low. Expenses to income comparison in salarymen rise annually, but the savings behavior has been declining although there are some growths in saving behavior. This says majority of people regards to more expenses than savings [18] According to statistical data, Thai people have lower rate in savings due to many factors, economic conditions or others. However, saving money is eminent and is considered to be an alternative that will lead to another factor that help achieving anticipated goals. The reason for savings are different in various individuals.

Only certain groups of Thai reserve their income into savings, especially the group of people with higher income [7]. Encouraging more savings behavior in the country is not unproblematic due to the unhinged cost of living has increased significantly. These incurred debts are of lack of financial plans and management. In addition, currency contraction from inflation causing commodity prices to overgrown income. Consequently, consumerism tends to overshadow their saving behavior. Lack of saving discipline and fast coming earnings will backfire with severe economic outcomes.

From such problems, both government authorities and private agencies have tried raising campaigns encouraging people to alter their lavish consumption habits into economization by reducing avoidable expense and save for emergencies and imminent plans. Therefore, for the sustainability of education personnel with fixed income, the researcher has analyzed the consumption behavior and saving habit. This information is

an important guide in promoting financial plan and savings for education personnel to solve the shortage of cash flow, supporting cooperative savings in organization. The aim for this strategy is to create a model that could apply to public's saving behavior.

II. RESEARCH OBJECTIVES

The objects of this research were 1) to study consuming and saving behaviors of educational personnel from schools in Suphanburi Province, and 2) to analyze personal factor and economic factor that affected saving behaviors.

For this research, in the second objective, the researcher has formulated the following assumptions:

Hypothesis 1: Personal factors affecting savings behaviors of educational personnel from schools in Suphanburi Province.

Hypothesis 2: Economic factors affecting savings behaviors of educational personnel from schools in Suphanburi Province.

III. LITERATURE REVIEW

This research reviews on both literature and including the related in research to define the following concepts:

Concept of Consuming Behavior and Saving Behavior by [16]. Personal Finance Management Affecting to the Saving Behavior of People in Bangkok Metropolitan Region. The result was, most of them are employees in private companies which have a lower or equal amount of 20,000 baht, income, and have expenditure of 10,001 – 15,000 baht. In the matter of savings behavior, it was found that the majority of the samples in question have some type of savings in account with commercial banking (both saving and fixed accounts); they have proportionate savings and income per month, in a setting of available money remaining with a value of more than 5,000 baht. At the same time [6] studied Factors Influencing Members' Decision for Saving in Khon Kaen Public Health Saving and Credit Cooperative, Limited. The purpose of the research was to study the factors that have an effect on saving of the members, the result was found that the social factor had the most impact in order to meet the precautionary expense and self – influences decision to saving and economics factor had high impact on saving behavior for instance income, deposit interest, furthermore getting information about Khon Kaen Province Public Health Saving Cooperative Limited, it was another factor that affects the saving behaviors of the members. Use the concept as [20] studied Saving Behaviors of Undergraduate Students in Trang Province. The result showed that most undergraduate students in Trang Province had savings, and their number of savings influenced the students' behavior the most was themselves. They normally kept money with themselves and their purpose of saving

money was to be able to use such money in an emergency case. Factors that affected the students' saving the most were their current income and expense. And [25] studied Financial Policy that affects the Saving Behavior of all employees in Bangkok. It was found that Saving Behavior of work – age people in Bangkok most samplings have a form that is commonly used for saving money is depositing money with a financial institution. The main reason for emergency expense. The saving frequency is monthly. The saving period is 5 – 10 years. The future saving trend is the same savings. The percentage of income saving less than 10%.

Multiple Regression Analysis related in research result by [2] studied of factors Influencing Personal Retirement Saving Behavior of teachers in Nongkhai Province, Thailand. Data were analyzed by descriptive statistics and Multiple Regression Analysis was used for hypothesis testing. The research result found the personal factor (gender, age, education, marital status and salary had statistically significant impacted on saving. At the same time [12] studied Saving Behavior of People in Bangkok. This research was use Multiple Regression Models with analysis the return on saving, risk factors and promotion factors. When analyzing factors affecting the saving behaviors of people in Bangkok. This used Multiple Regression Models for Analysis Return factors, Risk factors and promotion factors. Affecting saving behavior in number of savings, savings objectives and saving patterns. And [17] the result of Factors Affecting Saving Behavior of the People in Songkhla Province. In this research, the hypothesis was tested by Multiple Regression Analysis. The result showed that personal factor such as sex and age that influence the saving behavior of the people in Songkhla Province with the significant level at 0.05.

IV. RESEARCH METHODS

The focus group in this study was education personnel from schools in Suphanburi Province testing with group sampling method from the community. The focus group consist of people from different background and diversities in comparison. However, each focus groups also need to share some similar qualities required [10]. In conclusion, the size of educational personnel from schools in Suphanburi Province was set into 150 samples in the group.

This Quantitative Research data is primary data and Survey Research by using questionnaire as a collecting tool, these questions measured in terms of a five – point Likert scale. IOC: Index of the Objective Congruence is also assessed for the questionnaire's quality assurance is 0.72. And used on study group to assess the consistent of the questionnaire by using Cronbach's Alpha is 0.88. The questionnaire was divided into 3 parts as follows:

Part1 Personal Information

Part2 Consumption and saving behaviors of Educational Personnel sample group from schools in Suphanburi is quantitative consumption data in the form of income and expenditures per month including miscellaneous expense, liabilities, assets, savings objectives, savings patterns, and other factors that influence this behavior.

Part 3 Factors influencing consumption and savings behavior of the sample group. The factors that will be taken into this study are divided into 2 aspects: personal and economic factors.

This data analysis is divided into 2 parts: primary data analysis and data analysis to answer the question in this research as follows:

- 1) Descriptive Statistics is used at the initial data analysis, which are: frequency, percentage, mean, and standard deviation. The interpretation of the mean score will reference [4] where each level is with score range of 0.80.
- 2) Inferential Statistics will be used to analyze the hypothesis, assessing the Multiple Regression Analysis.

V. RESEARCH RESULTS

A. Personal Information

The gender distribution informs the greater proportion of samplings 88 (58.7%) in the study area reveals female while 62 (41.3%) were male. The results showed 58 (38.7%) of samplings were within the age range 31 – 40 years, while 35 (23.3%) were in the age range 20 – 30 years. Majority of samplings 102 (68.6%) were Buddhism, followed by 28 (18.7%) were Islamism. The most of samplings 104 (69.3%) were marriage followed by 46 (30.7%) were single. Suphanburi Province was the domicile around 79 (52.7%), the central region was 25 (16.7%). The highest proportional 90 (60.0%) of samplings education showed Bachelor's Degree and Postgraduate or Master Degree was 36 (24.0%). The work experience in the range of 6 – 10 years of 61 (40.7%) followed by 46 (30.7%) were 1 – 5 years. And the majority of samplings 50 (33.3%) have a child followed by 2 – 3 children of 47 (31.3%).

B. Consumption and Saving behavior of Educational Personnel sample group from schools in Suphanburi.

The average income of the sample is 22,566.67 baht per month with the standard deviation of 8264.33. Their average expense is 7,188.33 baht per month with the standard deviation of 2762.35. The average Liability is 3,254.67 baht per month with the standard deviation of 1256.41. And the average total asset per household is 1,853,071.33 baht with the standard deviation of 1724.83.

The majority of the samples around largest expenditure was for food at 92 (61.3%). Most of the samplings 119 (79.3%)

were saved. The saving style is always save what are left from their monthly expense, it showed that 91 (60%). Around 71 (47.3%) of samplings have saved amount is 1,000 – 5,000 baht per month. The objective of saving is usually for the future expenditure of 78 (52%). The saving method are deposit with the commercial banks, state banks and other financial institutions have shown 84 (56.0%). Purchasing household item is the factor that has the greatest influence on consumption at the average of 4.340 (S.D. = 0.784), the level of interpretation is the most influential. And Income per month is the factor that has the greatest influence on saving at the average of 4.312 (S.D. = 0.809), the level of interpretation is the most influential.

C. The internal correlation coefficient between forecast variables and the correlation coefficient between all forecast variables and criteria variables.

1. The internal correlation coefficient between the predictor variables found that the variables with the highest correlation were gender and age, whereas the variable with the lowest correlation coefficient were status and domicile.

2. The internal correlation coefficient between the predictor variables found that the variables with the highest correlation were Income and Liabilities, whereas the variable with the lowest correlation coefficient were expenditure and asset.

The correlation coefficient between all forecasting variables and criteria variables found that all forecast variables were related to criteria variables, which is saving behavior of education personnel from schools in Suphanburi.

D. Result of Regression Analysis of personal's factor and economical factor that effect saving behaviors of schools in Suphanburi's educational personnel.

1. Result of Regression Analysis of personal's factor that effect saving behaviors of schools in Suphanburi's educational personnel.

Hypothesis 1: Personal factors affecting the saving behaviors of educational personnel from schools in Suphanburi Province.

Table 2 The result of the regression variance analysis of personal factor that affected saving behaviors of educational personnel from schools in Suphanburi Province.

Model	Sum of Square	df	Mean Square	F	P value
Regression	179.315	8	22.414	2.038	0.001*
Residual	1584.698	141	11.239		
Total	2164.093	149			

From Table 2, the result of ANOVA, it was found that P – value was 0.001. Which was less than 0.05, indicating that there was at least 1 personal factor variable affecting the saving behavior statistically significant of confidence level at the 0.05.

Table 3 Result of Regression Analysis of personal factor that effected saving behaviors of educational personnel from schools in Suphanburi Province.

Model	B	Beta	S.E.	T	P value
Constant	45.307		0.816	53.294	0.000
Sex (X1)	0.724	0.061	2.082	0.847	0.452
Age (X2)	-0.069	-0.368	0.083	-1.964	0.000*
Region (X3)	0.605	0.138	0.827	1.762	0.523
Status (X4)	0.253	0.014	0.338	0.842	0.762
Domicile (X5)	0.752	0.031	0.427	0.902	0.153
Education (X6)	1.843	0.152	0.695	0.964	0.012*
Work Experience (X7)	0.564	0.689	0.368	0.165	0.083
Number of Children (X8)	-0.864	-0.145	0.275	-0.563	0.025*

R = 0.482, R² = 0.039, Adj R² = 0.036, S.E._{est} = 2.086

From the table, regression analysis of personal factors affecting saving behavior of educational personnel from schools in Suphanburi analyzing by multiple regression analysis found that there are 3 variables in the personal factor variables with statistical significance at the 0.05, namely age (X2), education (X6), and the number of children (X8). This indicate that the 3 predictors were able to jointly predict the saving behavior of educational personnel with statistical significance at the 0.05. The greatest impact on saving behavior were education (X6) (Beta = 0.152), age (X2) (Beta = -0.368), and the number of Children (X8) (Beta = -0.145), respectively. Also, coefficient analysis shows the effect of personal factors affecting saving behavior of educational personnel at a predictive power of 3.60% (Adj R² = 0.036), which equal to the multiple coefficients of 0.482 (R = 0.482), a standard error in forecasting is 2.086 (S.E._{est} = 2.086), and the forecasting equation can be written as follows:

$$Y = 45.307 - 0.069X_2 + 1.843X_6 - 0.864X_8$$

From the equation can explain the change of personal factors affecting saving behavior of education personnel from school in Suphanburi as follow.

Age (X2) The change in levels negatively affects the savings of education personnel. It was statistically significant at the 0.05 confidence level because the coefficient (B) was negative = -0.069, meaning that all other factors were fixed. If the age of education personnel is increased by 1 year, resulting in decreased savings.

Education (X6) The change in levels positive affects the savings of education personnel. It was statistically significant at the 0.05 confidence level because the coefficient (B) was positive = 1.843, meaning that all other factors were fixed. If the education of education personnel is increased by 1 degree, resulting in increased savings.

Number of Children (X8) The change in levels negatively affects the savings of education personnel. It was statistically significant at the 0.05 confidence level because the coefficient (B) was negative = -0.864, meaning that all other factors were fixed. If the number of Children of education personnel is increased by 1 person, resulting in decreased savings.

2. Result of Regression Analysis of economical factor that effect saving behaviors of schools in Suphanburi's educational personnel.

Hypothesis 2: Economic factors affecting savings behaviors of schools in Suphanburi's educational personnel.

Table 4 The result of the regression variance analysis of economic factor that affected saving behaviors of educational personnel from schools in Suphanburi Province.

Model	Sum of Square	df	Mean Square	F	P value
Regression	52.689	4	13.172	2.524	0.013*
Residual	2132.518	145	14.707		
Total	2185.207	149			

From Table 4, the result of ANOVA, it was found that P – value was 0.013. Which was less than 0.05, indicating that there was at least 1 economical factor variable affecting the saving behavior statistically significant of confidence level at the 0.05.

Table 5 Result of Regression Analysis of economic factor that effected saving behaviors of educational personnel from schools in Suphanburi Province.

Model	B	Beta	S.E.	t	P value
Constant	11.792		1.058	4.963	0.000
Expenditure (X9)	0.425	0.364	0.105	5.824	0.079
Income (X10)	0.311	0.109	0.098	3.153	0.032*
Liabilities (X11)	0.678	0.253	0.194	3.597	0.163
Assets (X12)	0.524	0.294	0.102	2.089	0.174

R = 0.258, R² = 0.084, Adj R² = 0.067, S.E._{est} = 2.134

From the table, regression analysis of economical factor affecting saving behavior of educational personnel from schools in Suphanburi analyzing by multiple regression analysis found that there is a variable in the economic factor variable with statistical significance at the 0.05 is income (X10) (Beta = 0.109). Also, coefficient analysis shows the effect of economical factor affecting saving behavior of educational personnel at a predictive power of 6.7% (Adj R² = 0.067), which equal to the multiple coefficient of 0.258 (R = 0.258), a standard error in forecasting is 2.134 (S.E._{est} = 2.134) and the forecasting equation can be written as follows: Y = 11.792 + 0.311 (X10)

From the equation can explain the change of economic factors affecting saving behavior of education personnel from school in Suphanburi as follow.

Income (X6) The change in levels positive affects the savings of education personnel. It was statistically significant at the 0.05 confidence level because the coefficient (B) was positive = 0.311, meaning that all other factors were fixed. If the income of education personnel is increased by 1 degree, resulting in increased savings.

VI. DISCUSSIONS

According to results of the personal data, the most of the samplings were female, age between 31 – 40 years, marriage and education at Bachelor's degree. This is consistent with [19] studied of Factor affecting to Saving Behavior of worker

in Pathumthani Province. The result showed that the most of samplings was female, age 31 – 40 years, Bachelor's degree and Marriage status. And consist with the research of [24] studied of money saving guideline for preparation to retirement of the population in the Central Regional, found that most respondents were female who respondents more than male, the age within 41 – 50 years, marital status, bachelor degree and 3 – 4 family members. According to the research, it is more female than male because female is more cautious in their lives than male. Therefore, female have some need for stability, which is reflected in the savings that savings have more than male. Another part is that at the education level, the most of the samples who are in the Bachelor's degree have that much savings. Because at a higher education level, higher risks are accepted than savings, is an investment with a higher risk in terms of work experience.

From the result of Consumption and Saving behavior, the majority of samplings had the average income is 22,566.67 baht per month and the average liability is 3,254.67 baht per month. Which was consistent with the research of [9]. Behavior and Factors Affecting Investment for retirement of Teachers at Assumption College Sriracha Changwat Chon Buri. The result of the study found that the average monthly income is between 20,000 – 25,000 baht and the monthly debt expenditure is between 3,000 – 10,000 baht. Most of them have saving of 1 – 5,000 baht per month, it will save more if income increased. From this research, the amount of savings of the most of sample groups is at 1,000 – 5,000 Baht, which is consistent with the research of [22] who studied the Influent Factors to Saving Behavior of the Satun people. It was found that most of them have a saving behavior of less than or equal to 10,000 baht. The form of saving, this research was showed that most of the sample groups had the form of saving by deposit commercial banks, state banks and other financial institutions. In accordance with [25] Financial Policy that affects the Saving Behavior of all employees in Bangkok. Because most people are convenient and used to depositing money with financial institutions as much as possible due to it is the easiest and reach the most common people. This is the line with [22] on bank savings, which is also very popular from of savings. For the factor that has the greatest influence on saving is income per month at the average of 4.312 (S.D. = 0.809), the level of interpretation is the most influential, which was consistent with the research of [5] Consumption and Saving Behavior of Indebted Teachers of Lamphun Teacher Saving Co – Operative Society Company Limited. the factor that has the greatest influence on saving is income per month at the average and the level of interpretation is much influential.

The analysis personal factor and economic factor that effected saving behaviors. On the side of personal's factor was related in the research of [1], A Comparison of savings behavior and the financial management before the retirement Case study of the staff in Silpakorn University, Sanamchan Campus. Found that Gender, Age, Education, Number of Children and Income such factors affect the behavior of saving. As well as of [9] found that factors affecting investment are Gender, Age and Number of members who want to be care at significance level 0.05. The side of Economic factor was related to the research of [22] the result was found that economical factor has high impact on saving behavior on Satun's people decision to save is income at significance level 0.05, which has positive relationship with saving behavior. Which correspond to [14] Investigating the behavior of teachers towards saving and investment: evidence from Mekele, Tigray, Ethiopia. The study was found that marriage, female and income were associated positively with saving and investment of teacher's community. The above is consistent of [26] Analysis of the Economic Factors affective household consumption expenditure in Azerbaijan. In this research, the effects of disposable income, income tax and exchange rate on household consumption expenditures are determined using multiple regression analysis. The study found that some of these independent variables have a statistically significant positive impact on the level of consumption expenditures. And [3] studied of Thai Household Saving Ability Comparing between Formal and Informal Workers. The result indicated that demographic variable such as age, marriage status, the number of disable people in the household and socioeconomic variable such as household income positively affected the ability of the household to save money. The study revealed the ability to save can be increased if the income of the household increase.

VII. RECOMMENDATIONS

A. Recommendations for Practices

There are some people who have inappropriate savings. Because savings money shouldn't come from the leftover money. This section should be solved by looking for knowledge about savings, which can be searched from financial institutions or websites. And should pay more attention to saving in order to have savings for emergency and future expense.

B. Recommendations for Future Research

1. In this research, data were collected from questionnaires only. The results of the research may inaccurate from reality. Therefore, to make the research more accurate and complete.

For future research studies should include qualitative studies such as observations, interviews and focus group discussions. 2. The next study, should be study in other independent variables related to savings such as inflation, interest rate and unemployment rate.

VIII. CONCLUSION

From the result of the research of personal's information, the most of samplings were female. The age range 31 – 40 years, Buddhism, marriage the domicile in Suphanburi, education of Bachelor's Degree, the work experience in the range of 6 – 10 years and have a child for care.

For Consumption and Saving behavior of Educational Personnel sample group from schools in Suphanburi. The average income of the sample is 22,566.67 baht per month Their average expense is 7,188.33 baht per month. The average Liability is 3,254.67 baht per month. And the average total asset per household is 1,853,071.33 baht. The majority of the samples around largest expenditure is for food. Most of the samplings have saved. The saving style is always save what are left from their monthly expense in amount is 1,000 – 5,000 baht per month. The objective of saving is usually for the future expenditure. The saving method are deposit with the commercial banks, state banks and other financial institutions. Purchasing household item is the factor that has the greatest influence on consumption at the average of 4.340, the level of interpretation is the most influential. And income per month is the factor that has the greatest influence on saving at the average of 4.312, the level of interpretation is the most influential.

From the test result hypothesis 1 by multiple regression analysis, it was found if there was a change in age was decreased, the level of education was increased and the number of children was decreased by 1 level each. As a result, the level of savings was increased. From the test result hypothesis 2, regression analysis of economical factor affecting saving behavior of educational personnel, showed that there is a variable in the economical factor variable with statistical significance at the 0.05 is income. This mean that if income was increased, the level of savings was increased as well.

The study of consuming and saving behaviors of educational personnel from schools in Suphanburi Province, it was found that saving behaviors in the method of savings with the commercial banks, state banks and other financial institutions were the most. Therefore, Bank Executives or managers should focus on saving in the commercial banks, state banks and other financial institutions and make people aware of the importance of saving and continuously develop service to customers in all aspects. And from the analysis pf personal's

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factor and economical factor that effect behaviors revealed that young age, educational at high level than the bachelor's degree, person with a small number of children and higher monthly income from the aforementioned factors that have changed resulting in increased savings. Therefore, the government, organizations and related agencies should pay attention to the groups mentioned above to create in increased savings.

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Enhancing Ecotourism Management based on Local Resources towards the High Value Creative Economy of Na Tham Community, Yala Province

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Abstract—The future of tourism trends for 2021 and beyond, the tourism and hospitality industry must take the changes taking place towards a more sustainable world seriously especially ecotourism. This research aimed to study and evaluating plants in the limestone mountain areas of Wat Tham, study the potential eco-tourism attractions of the Na Tham Community, and recommend guidelines for managing ecotourism based on local resources aimed to create a high-value creative economy for the Na Tham Community, Yala Province. This study was qualitative research consisting of ecotourism theory, concepts of creative economy, concepts of ecology, and natural interpretation, as a conceptual framework. The research field was the Na Tham Community, Yala province (Thailand), whereas there were four sample groups of the key informants. The researcher selected thirty key informants and employed three research tools, composing of semi-structured interviews, and quality assessment form of ecotourism attractions as data collection tools. The researcher used content analysis, followed by written descriptive narratives. According to the findings, 27 families, 48 genera and 50 species were enumerated in the limestone mountains near the Na Tham Community, Yala province. The Orchidaceae, Araceae, and Polypodiaceae are the most diverse families with 6, 5 and 4 species, respectively. Concurrently, according to the study of the potential for ecotourism attractions, before the participatory development process of the Na Tham Community, Yala province. Meanwhile, according to the assessment results after passing through the participatory development process for ten months, it was found that they had a quality standard at a good level with 65 scores from assessment or 65 percent. The researcher passed down 3 guidelines of development to enhance ecotourism management based on local resources towards the high value creative economy of the Na Tham Community, Yala province: 1) guidelines for creating a plant database to educate and upgrade the interpretation of the ecotourism attractions as nature-based tourism via online communication, 2) development guidelines for economic activities using the cultural and natural assets coupled with creativity or technologies to produce ecotourism products and activities to add commercial value, 3) development of community participation and influence on the activities to develop ecotourism for the equal benefits to upgrade the ecotourism management based on local resources towards a high value creative economy. Besides, the survey discovered the Paraboea and Gesneriaceae, which were expected to be new world species or a record of Thailand on the top of the limestone mountain at Wat Tham.

Keywords—Enhancing Ecotourism, Ecotourism Management, Creative Economy, Yala province

I. INTRODUCTION

The global expansion of the tourism industry is incessant and plays the significant role in the international economic and social system. It is a key source of income, bringing in the foreign currency, jobs, and development to many countries. The United Nations World Tourism Organization (UNWTO) foresees that the number of international tourists will reach 1,800 million by 2030. With such statistic, the potential tourism reliant countries require to consider a tourism development plan to be set up as a national agenda, creating a

master plan to steer the tourism attractions aiming to attract the designated number tourists desired by their country. Thailand has set the goal to develop tourism as the preferred destination under the vision “Thailand is the quality tourism attraction with the world-class tourism competitiveness that generates and distributes income fairly, equally, and sustainable.” [1]. From the research results in a parallel dimension about the utilization of tourism resources, worthiness and conservation should be considered concurrently. Also, the natural resources i.e., non-renewable resources, such as mineral water, hydro-carbons, and the used biological resources that can be conserved for long-term and sustainable utilization. These biological resources, such as

plants and microorganism, is termed “biodiversity”, which is found less in the western temperate countries although they have more advanced technologies, should be taken in to consideration. Thus, the availability of valuable biological resources is an advantage and the study, knowledge construction, conservation, and sustainable utilization should be encouraged.

Ecotourism or Green Travel is a form of the environmentally friendly tourism that is safe for nature, while offering contentment and responding to the current world situation where everyone should save energy and maintain the environment. Ecotourism or green travel includes nature sight-seeing trips and the study of living things [2]. One interesting site is located in the southern part of Thailand, and is Yala the only landlocked province. Yala is a pleasant and uncluttered province, and the provincial and district capital has a beautiful design. The tourist attractions are diverse and striking, particularly in Betong District where the slogan is “The Southernmost Point of Siam and The Beautiful Border City”. Most people work in the agricultural sector, such as rubber plantations and orchards. Most of them are Islamic and have their own unique traditions and cultures but coexist peacefully in the multicultural environment. For this reason, the researcher foresaw the significance of the Na Tham Community as a community with abundant natural resources, traditions, cultures, wisdom, foods, fruits, and a long history of the reclining Buddha at “Wat Khuha Phimuk” or “Wat Tham”, where the over 1,000-year-old mural is situated. That makes this place have the innate potential to become an ecological, cultural, and historical tourist destination. Therefore, the researcher was interested to study the plants in the limestone mountain area of Wat Tham, Muang District, Yala province. Also, to compile a list of products from community resources showing the identity of plants and sustainable biodiversity in the area to support the development of ecotourism. Further, the researcher elected to explore the community’s potential and green-tourists’ demand to create ecotourism participatory management innovations based on the local resources to add value to tourism and service products with creativity and technology. The primary focus was to provide guidelines and plans for the development of a tourism industry connected with ecotourism to add value to the activities and strengthen the management potential of local entrepreneurs, also to access modern marketing methods for long-term sustainable income generating. The marketing gap from the potential of Thailand tourism industry applies and offers the opportunity to distribute income to communities in the border southern provinces. This to assist the communities to be well-prepared for a grassroots economy and community industry and to

develop competitive advantage among the quality tourism industry, which is the creative, culture, and high value services industry according to the 4.0 Thailand Development Strategy[3].

The research results will be very useful for the development of ecotourism based on local resources to create a high value creative economy for the Na Tham Community, Yala province in different dimensions to support the development of creative ecotourism with the cultural identity, diversity of local plants, and assist the government agencies concerned with tourism in Yala province to attract tourists. The research results could be used as a tool for enhancing competitiveness among the tourism businesses, providing benefits to the community, entrepreneurs, and tourist attraction owners to recognize the strengths, weaknesses, opportunities, and threats to tourism activities. The development guidelines provide a mechanism to navigate the development of management, marketing promotion, and quality of tourist attractions. There are benefits for the tourist who will receive services that fulfill their desires, get a positive experience in ecotourism, and have wonderful travel that is worth the cost.

II. RESEARCH OBJECTIVES

- 1) To study and evaluate plant diversity on limestone hill of Wat Tham of Na Tham community, Yala province.
- 2) To study the potential ecotourism attractions of the Na Tham community, Yala province.
- 3) To recommend management guidelines for ecotourism based on local resources towards creating a high value creative economy for the Na Tham community, Yala province.

III. LITERATURE REVIEW

1. Tourism Theory [4] explained that tourism is travel from a regular residence to other locations temporarily. It is voluntary travel, non-business related nor with an income earning purpose. It is in line [5] who clarified that tourism is the travel from a regular residence temporarily and voluntarily to change the living environment or conduct non-occupational or non-habitation related activities. Moreover, McIntosh, [6] that tourism is the outcome of the circumstances or the association derived from the interaction between tourists and service businesses that relate to activities that satisfy the tourists or visitors.
2. Ecotourism Theory The World Tourism Organization [7] proposed the concepts of ecotourism as follows. 1) It is tourism concerned with nature. 2) Knowledge providing and interpretation are involved. 3) It is tourism activities for a small group. 4) It minimizes the effects on nature while offering benefits to the local community. 5) It raises the

awareness of conservation. Other than these five concepts, the researcher studied the concept presented by [8] which stated that ecotourism activities involve learning and natural experience. Some activities have the obvious characteristics of ecotourism, whereas some might be on the borderline and the components, objectives, and services should be considered for what they are aimed at and how such as for relaxation, studying, adventure, sports, entertainment, and experience, etcetera. However, the implemented the concept to the ecotourism development at Na Tham Community, Yala province in terms of the utilization of tourist attractions.

3. Natural Interpretation Theory The study pointed out the natural attractions management for the highest benefits according to the ecotourism management principle. Consequently, tourists or visitors had learnt something. The development of tourist attractions to a learning source is the basis of information and experience to support a learner pursue knowledge and have continuing extensive self-learning to enhance them construct the learning process and serve as the learning center [9]. A significant step to support such a process is the interpretation. [10], the Father of Natural Interpretation, stated that interpretation is the operation that is not in the interest of the area users. Further, natural interpretation is the key activity that allows visitors to learn about the area, ecosystem, and natural resources to be impressed and have an awareness of conservation [11]. Natural interpretation conveys and relays the facts or is the tool for the public or tourist to perceive the significance of natural resources, have a common understanding and amiability during rambling along natural trails. Thus, appropriate naming of a trail should be taken into consideration when creating the interpretative media. The names should connect with the prominent point of the area. The introduction to the trail, the display of trail layout, and the elucidations along the trail highlight the relationship between the living and non-living things which are the components of environment [12]. The designation of a natural trail, in any area, aims to prevent tourist loss or leaving the excursion. The trail should be convenient, without danger to prevent accidents, and avoid the damage to the surrounding plants and animal. Signs should be displayed along the trail, plus name plates of the plants and the tourist regulations [13]. The goal of natural interpretation is to educate the visitors or tourists, which is the foundation of understanding and awareness that will finally construct the skills or practice automatically [14]. For this reason, the natural interpretation theory directed the researcher to the development of ecotourism attractions interpretation of the Na Tham Community, Yala province unambiguously.

4. Concepts of a creative economy The study showed an interesting explanation from “World Creative Hub” [15], who defined the meaning of creative economy as “the economy including the industries founded on the creativity, skills and proficiency, and talent, which are valuable for establishing the wealthiest and jobs, that are accumulated and passed along from generation to generation under intellectual property protection.” Likewise, [16], clarified that the core of creative economy comprising economic activities creating new things or interpretation regardless of cultural-related concepts that would start an industry based on the creative economy and eventually developed into the “creative industry” that launches the ecosystem of creativity comprising local resources and the social system supporting the creativity. The researcher implemented the creative economy concept by introducing the community to use local resources to increase their economic value and raise awareness of local resources’ value. Communication in the participatory process was applied to lead the development of the social system, promoting a sustainable creative economy.

5. Concepts of ecology and plant society in the Yala limestone mountain. The mountain area in Thailand occupies 150,322.45 km² or 93,951,533 rai, accounted for 29.3% of the entire country area. The larger mountains are limestone, granite, and sandstone mountains and are found throughout the country [17]. Limestone mountains have their own characteristics; they are knotty mountains and in some areas have sharp and wavy tops. Some have a high cliff and short channels, underground water courses, caves, and sinkholes (Rattana, 2011). These outstanding characteristics make the mountains interesting in terms of the diversity of living things and the trace of human civilization. Limestone mountains occupy 12.5 million rai area or 4% of Thailand. they are mostly found in Kanchanaburi, Tak, Lumphun, Chiang Mai, Mae Hong Son, and Saraburi. The smaller mountains occupy less than 10,000 rai or single mountains that are within the plain areas and not involved in other ecosystems. For this reason, it is a supportive factor of new development. In addition, the living things at the limestone mountains have specific features that match the environment, producing endemic species dispersed within a limited area or area with a low populace. Some are classified as rare species or in the endangered group [18]. A report from Thailand Red Data: Plants illustrated that there were 800 kinds of the endemic species in Thailand, of which 180 kinds (22.5%) were found only at limestone mountains. The researcher applied all above concepts as the guidelines and primary data to study the plants at the limestone mountains area of the Na Tham community, Yala province.

IV. RESEARCH METHODS

This research applied the qualitative research methods.

A. Key Informants

Purposive sampling was applied along with the snowball selection method to select the qualified key informants. The list of the persons who held similar qualifications was mentioned by the key informants during their interview to collect sufficient data for the analysis. Data were collected from willing and voluntary informants only, to gain actual and solid opinions from all related sectors to tourism in Yala province and members of the Na Tham community. As a result, 30 key informants were selected [19].

Tool Construction and Quality Check

The research tools used to collect data included a semi-structured interview form, a quality evaluation form of ecotourism attractions, and an evaluation form of plants in the limestone mountain area. The guidelines for setting the key questions were based on the concepts, theories, and researches related to ecotourism and the audit of a quality standard of ecotourism attractions.

B. Data Collection

The data were collected from two sources.

1. Primary data were collected from the semi-structured interview form, the quality evaluation form of the ecotourism attractions by the field trip to the limestone mountain area adjacent to the Na Tham community, Yala province. Information of plants in the limestone mountain area close to the Na Tham Community and surrounding areas were collected using the evaluation form of plants. A survey was conducted in the study area. The data and reports from the relevant researches, questioning community members and the area survey were the sources of data for considering the selection of the plot area for data collection. The route and plants survey in the study area was conducted to set the temporary plots and determine the best natural trail. The biodiversity of plants was studied by collecting plants with perfect leaves, flowers, fruit, and seeds (if any) from the sample plot to get a sample of dry and wet plant specimens to examine and define the type. A minimum of three samples per one type were collected for plant species analysis. The group discussion with the key informants, relevant people to ecotourism management, the community of Na Tham, and participant observation at the attractions where eco-tourists had visited.

2. Secondary data was collected from the related documents and information since 2017 to 2020 from the Ministry of Tourism and Sports (Department of Tourism), Tourism Authority of Thailand, Thai Ecotourism and Adventure Travel Association (TEATA), and the Designated Areas for

Sustainable Tourism Administration (Public Organization).

C. Abbreviations and Acronyms

1. Content analysis was applied to analyze the qualitative data by following these steps. 1) The data obtained from the in-depth interview, group discussion, and participant observation should be accurate and represented the current state-of-the research field. 2) The data should be recorded in detail by using the descriptive record based on the researcher's observation or the interview with the informants. These were the raw data. 3) The key informants checked the data (member checks). 4) The triangulation method was used to determine the reliability of data from the different sources [20].

2. The analysis of plants in the limestone mountain area at Wat Tham and surrounding areas involved analysis to determine the plant names, the analysis and selection of the kinds of plant and a suitable area for natural interpretation media, and the report and research summary to propose the management guidelines for ecotourism based on the local resources towards generating a high value creative economy for the Na Tham community, Yala province. Abbreviations and Acronyms

V. RESEARCH RESULTS

1) *The research and evaluation of plant diversity on limestone mountain area at Wat Tham, Na Tham community, Yala province were provide.*

The area of Wat Tham, Na Tham community, Yala province is limestone mountain with tropical evergreen rain forest. . The present study revealed 27 families, 48 genera and 50 species. The Orchidaceae, Araceae and Polypodiaceae are the most diverse families with 6, 5 and 4 species, respectively.

Based on field study of plant diversity on the limestone mountain area at Wat Tham, the group discussion was criticized the outstanding of plants and collected some reasonable plants for learning along the nature trail at Wat Tham, Na Tham community, Yala province, as shown in Table 1. 3

Table 1 Outstanding plants for the learning station along the ecotourism trail of Wat Tham, Na Tham community, Yala province.

No.	Local name	Family	Botanical name	Character analysis for nature interpretation
1.	สโรวัวมอมน	Zingiberaceae	<i>Zingiber purpureum</i> (Raf.) Hook.	This plant is one of Thai Pincock plants that found only in the southern Thailand. The leaf pattern is conspicuous. Moreover, the habit of this plant is interesting.
2.	โหล	Polkiaceae	<i>Asplenium polkiense</i> W.Hunter et Crab.	<i>Asplenium polkiense</i> is endemic to Thailand. Only 1 species in this genus were found in Thailand. The distinct characters are spiral venation in leaf and the lamina of a fine glossy green above and glaucous beneath.
3.	นโหลโหล	Oleaceae	<i>Jacquinia speciosa</i> Lam.	<i>Jacquinia</i> is a genus of shrubs and trees in the star family (Guttifera). This is only one of star Jacquinia in Wat Tham. Insect-like flowers. They look spectacular when they have many flowers.
4.	โหล	Gesneriaceae	<i>Asplenium sp.</i>	This species was found in the hilltop by spore sowing, perhaps it is a new species or rare record for Thailand. The flower of this plant also looks very elegant.
5.	โหล	Orobanchaceae	1. <i>Cephaelis pedunculata</i> (Raf.) Satake 2. <i>Asplenium sp.</i> 3. <i>Pinellia sp.</i> 4. <i>Clatiger sp.</i> 5. <i>Dendrobium indicum</i> (Blume) Miq. 6. <i>Alpinia pulchella</i> (Raf.) Link.	Orobanchaceae are one of the most popular flowering plants in the world. The hilltop of Wat Tham Insective mountains is a hotspot of Orobanchaceae. Many orchids are found here in the ecotourism park. Furthermore, some terrestrial orchids are found on the spiral trail.

Some spectacular plants discovered on the limestone mountain area at Wat Tham, Na Tham community, Yala province.

2. Study results of the potential ecotourism attractions of the Na Tham community, Yala province.

1) The evaluation results of the ecotourism attractions quality at the Na Tham community, Yala province were evaluated twice, before and after the development, by three experts in tourism using the evaluation form of ecotourism attractions quality produced by the Department of Tourism, Ministry of Tourism and Sports [21]. The results indicated that the overall quality of the Na Tham community before the participatory development process (July 2020) was at a moderate level, with a 59 score or 59% or ★★.

Moreover, the results showed that the overall quality after implementing the participatory development process over ten months (April 2021) was at a good level, with a 65 score or 65% or ★★★, shown as follows.

Table 2 Quality Evaluation Results of Ecotourism Attractions at Na Tham Community, Yala Province

Quality Evaluation Results of Ecotourism Attractions at Na Tham Community, Yala Province		Before (score A*B)	After (score A*B)
1) Potential of ecotourism			
1.1	Tourism attractiveness and natural sources of learning	8	8
1.2	Natural resources facility	8	8
1.3	Connection between the local culture and natural resources	6	6
1.4	Safety of natural resources for tourism	6	6
Total score for no. 1 (40 scores)		28	28
2) Potential of area utilization for sustainability			
2.1	Management of tourist attractions utilization	1	4
2.2	Management of tourist service	3	3
2.3	Management of tourism activities	3	4
2.4	Management of follow up and evaluation of the change of area results from tourism	2	2
Total score for no. 2 (20 scores)		9	13
3) Management of knowledge providing and raising awareness			
3.1	Have the service center to provide the information and facilities to the tourists	2	2
3.2	Provide knowledge about energy saving and accurate waste management to the tourists	3	3
3.3	Provide knowledge about the value and conservation of natural resources to the local people and surrounding communities	3	4
3.4	Have the knowledgeable staff who are expert in ecotourism and conservation to service the tourists, entrepreneurs and communities	3	3
Total score for no. 3 (20 scores)		11	12
4) Participation of community in tourism activities			
4.1	Local community takes part in tourism management	3	4
4.2	Community earns income from tourism	6	8
Total score for no. 4 (20 scores)		11	12
Total score (100 scores)		59	65

2) The SWOT analysis results of the Na Tham community, Yala province as ecotourism attractions based on local resources towards the high value creative economy are shown in Table 3.

Table 3 Strengths, weaknesses, opportunities, and threats of the Na Tham community, Yala province as a tourist attraction

Strengths	Weaknesses
<ol style="list-style-type: none"> The community members were friendly and warmly welcomed tourists. There were a variety of attractions in the area, such as occupations, nature, activities, traditions, and the unique Dvaravati civilization. The community gathered in a strong formal and informal group to organize the activities. It had a strong community enterprise. Tourism activities were varied, such as an activity to learn about nature from the cave, culture, traditions, and community occupations such as to dye cloth and whet egg by using Si Moya clay. The demands of tourists of all age ranges were fulfilled, as they chose to join the activities because of the accessible route. It was plentiful with natural resource. There were many kinds of orchid growing the top of the limestone mountain at Wat Tham and other kinds were found along the way. 	<ol style="list-style-type: none"> The community members who was in charge of health tourism lacked the skills to design the activity to visit the tourism. There was insufficient low-costy service. The types of transportation and background information were limited along the ecotourism trail. There was no studied for product pricing. There were no new generation to lead the tour at the tourist attractions in the community.
Opportunities	Threats
<ol style="list-style-type: none"> Ecotourism is in the interest of tourism worldwide (Sustainable Development Goals). It is consistent with the trend of tourism products and services, and the behavior of Thai tourism during the Covid-19 pandemic, as reported by T.A.T. The government authorities promote domestic ecotourism. The government authorities supported Na Tham District as a key attraction of the province and Thailand. High convenient transport and quality roads to facilitate easy travel. Yala Province connected to Malaysia, so it has an opportunity to welcome Malaysian tourists throughout the year. 	<ol style="list-style-type: none"> The uncertain world economy affects the decision of tourist to travel to and spend less money. International terrorism in the three southern border provinces is a continuing problem. Natural disaster, social climate change, and the Covid-19 pandemic in future epidemics. The competition among the tourist attractions in ANIAN. The flight centers are remote and insufficient to support tourists from the central region. Impact of the country's policy variations.

3. Management guidelines for ecotourism based on local resources towards generating a high creative economy of Na Tham community, Yala province

3.1 Guidelines for creating a plant database to educate and upgrade the interpretation of the ecotourism attractions as

nature-based tourism via online communication

1) Improve the plant information signs to provide knowledge to tourists at the starting point of the ecotourism route at the Na Tham community, Yala province.

2) Develop an online media, such as a Facebook page to communicate the ecotourism attractions in the Na Tham community, Yala province.

3) Create a bilingual VDO (Thai-English) to introduce the ecotourism attractions by having a QR code at the primary locations along the route.

4) Produce local interpreters to promote the ecotourism at the Na Tham community, Yala province.

3.2 Development guidelines for economic activities using the cultural and natural assets coupled with creativity or technologies to produce ecotourism products and activities to add commercial value for the Na Tham community, Yala province

1) Create communications to convey the experience of ecotourism to encourage Thais who are the target group eager to have such an experience.

2) Apply technologies to communicate and promote responsible tourism among the supply chain and Thai tourists consistent with restoring and maintaining sustainable tourism resources.

3) The community should prioritize communications to ensure public health within the area and create media to publish safe and appropriate practice guidelines for traveling to suit the new normal situation.

4) Build confidence and provide accurate knowledge to the public and local people about the safety measures of public health and zoning for ecotourism.

5) The community and government authorities should cooperate to adjust demand to promote and encourage domestic tourism to minimize the dependence on foreign markets.

6) Integrate the expertise of local agencies to create a digital ecosystem which will help to reduce the gap of digital skills and continuously update the operation bases on the database.

3.3 Development of community participation and influence on the activities to develop ecotourism for the equal benefits to upgrade the ecotourism management based on local resources towards a high value creative economy for the Na Tham community, Yala province

1) Support the government and private educational institutes in coaching the relevant people in the tourism industry, particularly the local people, to manage the tourism resources sustainably.

2) Establish cooperative networks between educational institutes, relevant agencies, and local authorities as the center to promote, support, and organize activities related to the

management of tourism resources under the participation of the community.

3) Strengthen the community to take part in the tourist attractions management by giving important roles to the local people who have tourism-related jobs to generate community income appropriately for their long-term self-reliance.

4) Create a new dynamic founded on the self-adjustment ability of the government sector, entrepreneurs, and community to be flexible towards integration to enhance the work potential, particularly in terms of supply.



Figure 1 Plants at the limestone mountain at Wat Tham



Figure 2 The rocky ground on the hilltop of Wat Tham limestone mountain



Figure 3 *Eriogonum pulchrum* (Kall.) Kall.



Figure 4 *Anatum sesuvium* Lour.



Figure 5 *Pterococ* sp.



Figure 6 *Micropera pallida* (Roxb.) Lindl.



Figure 7. Field survey of plants at the limestone mountain at Wat Tham



Figure 8. Stakeholder group discussion of the Na Tham community



Figure 9. Interview with Thai eco-tourist in the community



Figure 10. Interview with tourism entrepreneur in the community

VI. DISCUSSIONS

The results of the plant survey on the limestone mountain at Wat Tham, Na Tham community, Yala province showed that this was the first time that 50 species of plants with 27 families, and 48 genus were discovered in the area as there has never been a survey conducted in this area, and the database was very useful for the community allowing efficient conservation, care, and utilization. The researcher had a group discussion to present the findings and a database of plants found on the limestone mountain at Wat Tham and surrounding areas to set the ecotourism route. The ecotourism interpretation theory of Freeman Tilden [10] was applied as the principle to select the pattern of interpretation to suit the community. It was in line with Onanong Cheablam [11] who revealed that natural interpretation was the key activity at natural tourist attractions, where tourists could learn about the area, ecosystem, and resource, which finally created the impression and awareness. The plant database was developed via the participatory process of the community to select outstanding plant species that appeared on the ecotourism route without destroying other resources. It was consistent with the Travel Buddy [13] that described that any area that was assigned as the natural trail aimed to prevent loss from the designate route. The route was convenient and safe to ensure the tourists, as well as the plants and animals, were secure. The direction signs and plant information plates, as well as the do and don't instruction signs, were put up along the route. The visitors and tourists could gain knowledge, which was the

first step to understanding, awareness, and skills and accurate practice.

Moreover, various kinds of orchids, both ground and commensal orchids grew along the way and on the top of the mountain were some assumed rare orchids. Since during the survey it was not the blooming season for some plants, so there was a lack of plant samples to identify accurately the names of all plants. Thus, further surveys are required at a different period to acquire the flowers and fruits data to identify the type of plants correctly. At the foothill, *Kaempferia pulchra* (Ridl.) was the only Zingiberaceae family that is found in southern Thailand, was discovered. It had a beautiful leaf pattern with white flower, though generally it is pink. It contained special antidote properties.

It was in accordance with [22] which reported that Thai people in the old day mixed its rootstock with other active bases to create the formularies of elixir or common cold drug by pounding the rootstock with onion. Furthermore, peacock ginger treated the inflammation and eye problem. Some people applied the juice by squeezing the leaf to sooth a sore throat. In addition, for the purpose of upgrading the ecotourism management based on local resources towards a high value creative economy for the Na Tham community, Yala province, the researcher proposed guidelines for creating the plant database to educate and upgrade the ecotourism interpretation via online communication as the details stated in the research results section.

The evaluation results of ecotourism attraction quality at the Na Tham community, Yala province indicated that the overall quality before implementation of the participatory development (July 2020) was at a moderate level with a 59 score. However, over the following ten months after the implementation of the participatory development (April 2021), the overall quality was at a good level with a 65 score. It was obvious that the community earned six more scores after the development process in the matter of potential of utilization for sustainability, in terms of utilization of tourist attraction, and the management of tourism activities. It reflected that the participation of the community and their self-adjustment resulted in the positive outcome. It was in line with A.H. Wertheim [23] who explained that participation was when the people took part in the decision making process in the administration and political matters to determine the demand of their own community. Moreover, [24] pointed out that giving the opportunity to the people was to empower them to mobilize the capability of resources management, decision-making, and controlling activities rather than to wait and expect the development solely. The changes at the Na Tham community clearly exhibited that the community participation was the key factor of the development.

Furthermore, the researcher proposed the development guidelines for the process of community participation and their influence on the activities for developing the ecotourism in the community, aiming for equal benefits of development to improve the ecotourism management based on local resources towards the high value creative economy of Na Tham community, Yala province. In response to the research objective, which was to upgrade the community with the ecotourism, the researcher applied the content analysis method to analyze the study results of community context, plants in the community areas, and the SWOT analysis under community participation. Consequently, the researcher obtained the development guidelines for economic activities founded on the cultural and natural assets combined with creativity or technologies to produce ecotourism products and services that added commercial value for the Na Tham community, as detailed in the Research Results section. The above recommendations were in accordance with the direction of Thailand tourism development plan. [25] stated that the demand and supply should be enhanced for the community tourism during the Covid-19 pandemic. The implementation of technologies, innovations and online media to publish information, for marketing, creating tourism activities, communication, payment, and promoting the participation of the new generation was very essential. Besides, during the spread of Covid-19, the "Digital Nomad" the group of people who works online, has developed, and becomes popular; people not only work from home but also from the beach, the mountain and other tourist sites. As a result, this group of people is a target group who would possibly travel to the Na Tham community for relaxation and experience the local and natural lifestyle while learning about the ecosystem.

VII. CONCLUSION

The results of enhancing ecotourism management based on local resources towards generating a high value creative economy for the Na Tham community, Yala province, Thailand showed that five outstanding plant families were suitable to create learning station along the ecotourism route on the limestone mountain of Wat Tham at the Na Tham community. There are Gesneriaceae, Oleaceae, Orchidaceae, Phyllanthaceae and Zingiberaceae. . . . Moreover, during our expeditionary fieldwork on limestone mountain in September 2020 at Wat Tham, Yala province, *Paraboea* sp. (Gesneriaceae) was discovered. It was expected to be a new species or new record for Thailand was discovered. More information is needed for described and confirmed.

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Personal Financial Management of Employment-age in COVID 19

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Abstract— This research is objective to study. First the study the spending behavior of working-age people. Second the measure knowledge Understanding personal financial planning. Third the suggest methods of effective personal financial management of working people. Using the framework for the study, namely personal factors Money spending behavior Financial planning. The example group was employment-age in Bangkok have a Revenue of 400 people. A questionnaire was used as a tool. And use the Statistical calculation Multiple Regression.

Therefore, study was as follows: Personal factors have a positive impact on personal finance management. Statistically significant Money behavior have a positive impact on personal finance. Statistically significant Financial planning have a positive impact on personal financial management. Statistically significant.

Keywords— Personal Financial Management, Employment-age, COVID 19

I. INTRODUCTION

In the current situation of the Covid-19 outbreak worldwide and in Thailand, it is expected that it will continue for years to return to the New Normal. This will affect the economic recovery of the world and Thailand for many years due to the limited trade in the world market and overseas travel. Thailand relies heavily on domestic factors for its economic recovery, at least until it sees positive Thai economic growth. The economic institute estimates it will be a long haul until 2022. If so, in the labor market there will be high levels of unemployed and potentially unemployed. As an estimate, there are likely more than 3 million people unemployed, including more than 14 million part-time workers. The labor market demands different work styles, that is, working in a flexible labor market due to limited full-time positions, but also part-time jobs, in line with employer requirements that some businesses cannot operate full-time. If they were to be hired full-time, they would not be able to bear the costs of the economic downturn following the Covid-19 outbreak and may choose to shut down, further reducing their employment opportunities. Working in the modern labor market is work from home, especially generation Z people who use multiple skills to multitask with multiple employers. Working in the aforementioned manner can be part-time and hourly employment. The Labor Protection Law and the Minimum Wage Law will not protect this kind of work. According to the National Statistical Office, a survey of the labor force in the

fourth quarter of 2020 to determine the working conditions and the unemployment of the population found that, there were 56.94 million people aged 15 years and over, 39.09 million people in the labor force and 17.85 million people outside the labor force. The number of hired workers had increased by 810,000 people, compared to the fourth quarter of 2019 (from 37.48 million to 38.29 million). The number of unemployed people in the fourth quarter of 2020 totaled 727,000 people or equivalent to 1.9 percent of the total labor force, compared to the same period of 2019, there were 356,000 people unemployed (from 371,000 to 727,000). When considering unemployment by education level in the fourth quarter of 2020, it was found that those who graduated with a bachelor's degree had the highest unemployment rate of 211,000 people, followed by junior high school 137,000 people, high school 108,000 people, elementary education 104,000 people, vocational level 100,000 people, uneducated and lower primary education 53,000 people and postgraduate students 11,000 people respectively (National Statistical Office, Ministry of Digital Economy and Society). Therefore, researchers were interested in conducting a study on working-age population's personal financial management in the era of the Covid-19 crisis. This was because personal financial management had become an important factor in working-age population's livelihood in the manner of managing and using it as a tool to aid in spending behavior, which indicated the extent of their spending. "Financial happiness" was the management of income and expenditures that were sufficient to meet the expense burden, sufficient for debt repayment, having savings and expanding investments.

II. OBJECTIVES

- 1) To study the spending behavior of working-age population.
- 2) To measure the knowledge and understanding of personal financial planning.
- 3) To recommend effective ways to the personal financial management of working-age population.

Research scope

1. Content: The content of the research involved a study on the personal financial management of working-age population during the COVID-19 era.
2. Population and sample: Demographic and sample groups were working-age population, both male and female in Bangkok, regular income, aged 18- 60 years old and personal income of 9,000 baht or more per month.

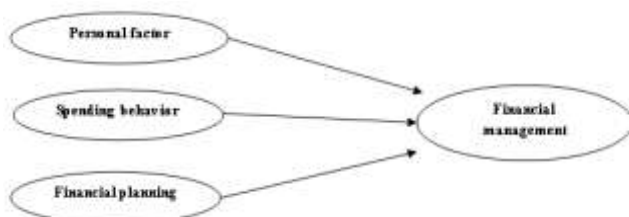
Hypothesis

Hypothesis 1: Personal factors had a positive effect on personal financial management.

Hypothesis 2: Money spending behavior had a positive effect on personal financial management.

Hypothesis 3: Financial planning had a positive effect on personal financial management.

Conceptual framework



Personal financial management refers to the ability to organize your personal finance effectively and know how to use your money wisely to achieve its objectives.

Working-age population means male and female aged 18-60 years old and regular income from 9,000 baht per month.

Covid 19 is the most recently discovered contagious disease caused by coronavirus. The emerging virus and disease were not known before the outbreak in Wuhan, China in December 2019. Currently, COVID-19 is pandemic and affects many countries around the world.

Concepts and theories and related research

Personal Financial Planning Definition

Nimmanpatcharin, N. (2006) stated that personal financial planning meant finding alternatives to support the process of making advance decisions about the amount and timing of funds, source of funds and allocation of funds by defining activities, methods, time, and responsible parties in accordance with the management of various financial risks.

Bernard J. Winger, Ralph R. Frasca (1997) defined personal financial planning as personal financial management in order for individuals to achieve their desired financial goals. A person's goals could be categorized into two ways:

1. Financial goals are goals that could be set in monetary form, and if financial goals were achieved, they would improve a person's well-being. An individual's financial goals would differ depending on the individual's state of mind, including the financial status of that person such as saving money to buy a home, saving money for a child's education, saving to spend during retirement and having enough money to spend on a daily basis. The key to a person achieving their desired financial goals was money. Hence, the desired financial goals could be achieved with good personal financial planning.

2. Non-Financial Goals were targets that were difficult to set in a form of money such as making family life happy, helping the needy, and rescuing abandoned animals. A person could achieve these goals without the need for any money.

Lawrence J. Gitman, Michael D. Joehnk (2007) provided personal financial planning ideas that the most effective personal financial planning was the key to personal financial management to achieve the desired financial goals.

Benedict Koh Fong Wai Mun (2003) gave the idea of personal finance planning as important. If a person wanted to keep improving their standard of living, they tried to avoid financial deficiencies, proper investment, and amass a sufficient amount of financial wealth.

Benefits of personal financial planning

Inlakhon, S. (2005) explained that personal financial planning benefited individuals as follows:

1. Person had a better quality of life because good personal financial planning could help a person achieve their desired financial goals.

2. Person could manage his income and expenditure as well as his savings more effectively.

3. Person had constant control of his or her financial situation to prevent the person from having excessive debt burden.

4. Person experienced less financial anxiety. This was because personal financial planning included projections of a person's future income and expenses. This detail could then be applied to financial planning in order to achieved desired financial goals. Therefore, personal financial planning allowed individuals to anticipate future events and provided a plan to support them.

Scope of personal financial planning

Richard J. Stillman (1984) said that when it came to good personal financial planning, planners should have a socio-economic understanding and use of financial management tools for more accurate, reasonable and feasible

planning. There were 6 types of personal finance management:

1. Financial Health: Proper employment results in stable income, planning and budgeting, as well as knowing how to use credit to strengthen their well-being.
2. Spending Money Wisely: Spending Money in all areas - food, clothing, transportation and more.
3. Home and Other Real Estate: Making a comfortable and safe residence as well as a non-viable investment.
4. Insurance Program: Creating stability for life and property through insurance.
5. Diversified Investment Portfolio: Proper selection of securities and investment institutions.
6. Retirement Plan: building stability and well-being throughout a person's lifespan.

Concept of personal financial planning

Ramnak, P. (1983), said the concept of personal financial planning arose from the income that individuals earned planning to spend on the necessities of living: food, clothing, housing and medicine. In addition, it was the payment for convenience that was based on necessity and satisfaction.

Numphut, S. (2002) noted that personal finance had many elements and relationships: career choice, income and life style.

Louis E. Boone, David L. Kurtz, Douglas Hearth (2000) discussed the concept of personal financial management, it studied the economic and financial management factors of individuals in order to have good financial liquidity in the future.

Richard J. Stillman (1984) conceptualized personal financial management as the efficient organization of personal finances and used it wisely to achieve its objectives.

Personal financial planning goals

Inlakhon, S. (2005) says that financial targeting may be set over time, including short-term financial goals and long-term financial goals as follows:

Short Term Financial Goals were goals that a person could achieve in a short period of time, that is, up to 1 year such as buying an air conditioner this summer and saving money to travel to the provinces

Long Term Financial Goals were goal that individuals had in the next 5-20 years or goals that people would take a long time to accumulate money to achieve such as saving money for retirement and saving money to finance future children education. Long-term goals may change because in the future, conditions and events may change such as economic conditions, including changes in one's own needs for example, a person had a goal of buying a house for 2 million baht in the next 5 years. Over time, the economic downturn

meant that individuals earned less, and they may shift their goals from two million home to lower-priced homes.

Sektakun, K. Having said personal financial statements and financial health checks were just the beginning of personal financial planning in terms of wealth and it indicates where a person was present, but it had not been told where they would go in the future. It was like a normal journey where a person needed to know a goal or destination. Here it meant "life goals". The "life goal" referred to the condition or event that a person wanted to happen in life and in the future such as a happy retirement, adequate money, good physical health, having a child with a good education, a job, and a good family and having possessions passed down for posterity, etc. Most people had dreams of achieving their goals in life in the same way, although the details of how to achieve them may differ for example, some people succeed in doing business and some work as professional employees in the organization.

III. LITERATURE REVIEW

Chatuwat, L. (2003) studied the behavior of credit card usage and spending deterrents of private university students in Bangkok Metropolitan Region. The study found that the amount of spending by credit card depends on personal factors. Male students spend less on credit cards than female students. The increase in class years, the average monthly income of the student and the average monthly income of the family resulted in an increase in credit card spending.

Thipchun, T. (2005) studied attitude and behavior of credit card users of Bank of Ayudhya Public Company Limited in Chonburi province. The study found that personal factors influenced attitudes and behavior of using credit cards.

Bunchai, C. (2009) researched personal financial management: a case study for working-age groups in Bangkok. According to the study on the use of funds and effective financial management methods of the sample, it was found that the funds were allocated in a categorical manner, most of which were the monthly expenditures. Most of them were food and beverage expenses, while savings and investment expenses were mainly for savings in the form of savings deposits. It was divided into 4 parts of income, 3 parts of spending and 1 part of saving. Most of them had a budget of revenues and expenditures each month.

Sithiphan, K. (2010) researched factors influencing the personal financial planning of the people of Bangkok. It studies personal financial planning, personal factors and factors influencing financial planning of people in Bangkok. The sample group was 150 people in Bangkok aged 20 years and over. Questionnaires were used to collect data and then analyzed the data using statistical testing methods. The results of the research revealed that personal factors (education and

occupation) affected personal financial planning in terms of the time frame and style of public financial planning. Influencing factor data (awareness of information, knowledge and understanding of financial and economic planning) affected the objectives of personal financial planning. Miemie S. W. Plaatjes (2007) researched on Developing A Framework to Investigate “The Personal Financial Management Knowledge of Individuals”, discussed the exploration and development of the personal financial management framework, as well as the study of a sample of citizens of South Africa. This study was conducted under 6 concepts: basic concepts of personal financial management, personal financial management, risk management, future planning, investing in financial resources and other planning. Experts had provided insight into these indices and used them as a tool for further development of personal financial management.

IV. RESEARCH METHOD

The population used in the study was SMEs entrepreneurs that used technology in financial transactions. Their office was located in Bangkok.

Sample size

Case 1: Lower bounds on sample size in structural instruction modeling of Westland (2010, p.476), the formula for calculating the sample size was proposed as follows:

$$n \geq 50r^2 - 450r + 1,100$$

Where r was the ratio between the manifest variables or indicators variable with latent variables. In this study, Indicators = 40 and Latent = 9 were included. Therefore, r = 4.44 based on the above formula calculation. 200 samples were obtained as the smallest number of samples acceptable.

Case 2: in consistent with Yamane's sample size (1967)

$$n = \frac{N}{1 + N(e^2)}$$

When

n was the sample size

N was the population size.

e was the error of the sample.

Confidence level 95%, the error of proportion was 0.05.

Substitute the values by the formula

Where

$$n = \frac{7,551}{1 + 67,551(0.05)^2}$$

$$= 398$$

It could be concluded that a sample size of 400 samples was sufficient to provide confidence in the research results. The samples used covered both cases.

Research findings

The results of the basic statistical analysis of the preliminary data of 400 working-age population, the results were as follows: The respondents were more female than males (69%), aged 46 and over (56%), the highest number of bachelor's degrees (57%), more than 15 years of work experience (71%), most of the type of living with parents / relatives (52%) and most of them with corporate staff (83%).

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients		Sig.	
	B	Std. Error	Beta	t		
1	(Constant)	.486	.190		2.565	.011
	1.1Gender	-.071	.072	-.068	-.991	.323
	1.2Age	.151	.046	.250	3.280	.001
	1.3Education Level	-.034	.051	-.046	-.673	.502
	1.4Duration work	of-.154	.044	-.268	-3.529	.001

Table 1: Results of relationship between personal factors in making purchasing decisions

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients		Sig.	
	B	Std. Error	Beta	t		
1	(Constant)	.814	.190		4.289	.000
	1.1Gender	.081	.072	.078	1.125	.262
	1.2Age	-.110	.046	-.184	-2.389	.018
	1.3Education Level	-.135	.051	-.181	-2.642	.009
	1.4Duration work	of.039	.044	.069	.901	.369

Table 2: Results of relationship between personal factors in recording expenditures

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients		Sig.	
	B	Std. Error	Beta	t		
1	(Constant)	.214	.082		2.603	.010
	1.1Gender	.143	.031	.305	4.603	.000
	1.2Age	-.009	.020	-.032	-.442	.659
	1.3Education Level	-.083	.022	-.246	-3.742	.000
	1.4Duration work	of-.007	.019	-.027	-.375	.708

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Table 4: Results of relationship between personal factors in future course of action

Personal factors affected the financial management in terms of purchasing reasons, person's age and working life influenced the quality of purchasing decisions, with the Standardized Coefficients Beta of 0.250 and 0.268 respectively. Recording expenditures on each purchase, individual age and education level affected the unreliability of expense recordings with Beta values of 0.184 and 0.181 respectively. Guidelines for solving debt problems, gender and education levels affected finding sources of loans to solve debt problems with Beta values of 0.305 and 0.246, respectively. Future actions, gender and working age affected private business ventures with Beta values of 0.177 and 0.159, respectively.

Table 3: Results of relationship between personal factors in guidelines for solving the debt burden problem

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	.338	.198		1.708	.089
1.1 Gender	.191	.075	.177	2.542	.012
1.2 Age	-.082	.048	-.132	-1.707	.089
1.3 Education Level	-.001	.053	-.001	-.018	.986
1.4 Duration of work	.094	.046	.159	2.065	.040

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	-.078	.303		-.256	.798
2.1 Regular income	.145	.045	.219	3.246	.001
2.2 Extra income	-.016	.069	-.017	-.238	.812
2.3 Monthly cost	-.058	.045	-.097	-1.296	.196
2.3 Savings	-.137	.041	-.244	-3.315	.001
2.3 Investment	.115	.044	.226	2.641	.009
2.3 Informal debt payment	.138	.051	.273	2.711	.007
2.3 Credit card charges	.147	.041	.309	3.594	.000
2.3 Car payment	-.150	.048	-.341	-3.131	.002
2.3 Home mortgage	-.093	.032	-.238	-2.932	.004
2.3 Insurance premium	.040	.041	.082	.987	.325
2.3 Merit / Ceremony fee	.074	.041	.138	1.803	.073
2.4 Payouts	-.059	.095	-.047	-.625	.533

Table 5: Results of relationship between spending behavior on product purchasing decisions

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	.407	.326		1.250	.213
2.1 Regular income	.020	.048	.029	.413	.680
2.2 Extra income	-.175	.074	-.174	-2.359	.019
2.3 Monthly cost	-.030	.048	-.050	-.632	.528
2.3 Savings	-.101	.044	-.176	-2.266	.025
2.3 Investment	.074	.047	.143	1.580	.116
2.3 Informal debt payment	-.036	.055	-.070	-.654	.514
2.3 Credit card charges	-.023	.044	-.047	-.520	.603

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2.3 Car payment	.146	.052	.326	2.825	.005
2.3 Home mortgage	.030	.034	.076	.883	.378
2.3 Insurance premium	.052	.044	.105	1.186	.237
2.3 Merit / Ceremony fee	-.092	.044	-.170	-2.096	.037
2.4 Payouts	.107	.102	.082	1.047	.297

Table 6: Results of relationship between spending behavior on recording expenditures

Coefficients^a

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	-.022	.134		-.162	.872
	2.1 Regular income	-.043	.020	-.148	-2.189	.030
	2.2 Extra income	-.013	.030	-.031	-.439	.661
	2.3 Monthly cost	.045	.020	.171	2.301	.022
	2.3 Savings	.006	.018	.026	.348	.729
	2.3 Investment	-.054	.019	-.242	-2.821	.005
	2.3 Informal debt payment	.063	.022	.283	2.815	.005
	2.3 Credit card charges	-.024	.018	-.116	-1.353	.178
	2.3 Car payment	.034	.021	.175	1.608	.110
	2.3 Home mortgage	-.034	.014	-.196	-2.425	.016
	2.3 Insurance premium	.053	.018	.245	2.945	.004
	2.3 Merit / Ceremony fee	-.007	.018	-.030	-.389	.698
	2.4 Payouts	-.020	.042	-.036	-.488	.626

Table 7: Results of relationship between spending behavior on guidelines for solving the debt burden problem

Coefficients^a

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	.408	.334		1.219	.224
	2.1 Regular income	.059	.049	.088	1.203	.230
	2.2 Extra income	.008	.076	.008	.111	.912
	2.3 Monthly cost	-.028	.049	-.046	-.560	.576
	2.3 Savings	.009	.046	.017	.208	.835
	2.3 Investment	.041	.048	.079	.843	.400
	2.3 Informal debt payment	-.097	.056	-.189	-1.723	.087
	2.3 Credit card charges	-.013	.045	-.026	-.278	.781
	2.3 Car payment	-.010	.053	-.021	-.180	.857
	2.3 Home mortgage	-.058	.035	-.145	-1.643	.102
	2.3 Insurance premium	.147	.045	.299	3.293	.001
	2.3 Merit / Ceremony fee	-.035	.045	-.065	-.783	.435
	2.4 Payouts	-.054	.104	-.042	-.522	.602

Table 8: Results of relationship between spending behavior on future course of action

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Money spending behavior factors affected financial management in terms of reasons for purchasing a product, regular income of working people, saving, investment, informal debt, credit card bills, car installments, and home mortgage expenses affected the decision to purchase price-oriented products with Beta value of 0.219 0.244 0.226 0.273 0.309. 0.341 and 0.238 respectively. In the aspect of recording expenditures for each purchase, working-age special income, savings, car payment, and traditional merit allowances affected the reliability of expense recordings with

Beta values of 0.174, 0.176, 0.326 and 0.170, respectively. Guidelines for solving the debt burden problem, working-age personal income, monthly expenditures, investments, informal debt, home mortgage payments and life insurance premiums affected finding a source of loans to solve debt problems with Beta value of 0.148 0.171 0.242 0.283 0.196 and 0.245, respectively. Future course of action, life insurance premium affected the private business with a Beta value of 0.299.

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.047	.386		2.711	.008
	3.1 Monetary Policy	-.308	.089	-.385	-3.462	.001
	3.2 Budgeting	-.741	.258	-.287	-2.869	.005
	3.3 Record of income-expenditures	-.015	.039	-.039	-.397	.693
	3.4 Budget comparison	.135	.052	.315	2.580	.012
	3.5 spending behavior	.085	.111	.097	.766	.446
	3.6 Savings	.229	.074	.299	3.075	.003
	3.7 Insufficient funds and solutions	-.029	.049	-.063	-.588	.558
	3.8 Having a deposit account	-.199	.145	-.145	-1.367	.176

Table 9: Results of relationship between financial planning on purchasing decisions

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.439	.402		6.072	.000
	3.1 Monetary Policy	-.483	.093	-.585	-5.216	.000
	3.2 Budgeting	-.113	.268	-.042	-.420	.676
	3.3 Record of income-expenditures	-.148	.041	-.356	-3.641	.001
	3.4 Budget comparison	-.056	.054	-.127	-1.032	.306
	3.5 spending behavior	-.111	.115	-.123	-.963	.339
	3.6 Savings	-.109	.077	-.138	-1.404	.164
	3.7 Insufficient funds and solutions	.070	.051	.146	1.356	.179
	3.8 Having a deposit account	-.562	.151	-.397	-3.714	.000

Table 10: Results of relationship between financial planning on recording expenditures

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.253	.252		-1.005	.318
	3.1 Monetary Policy	.229	.058	.407	3.945	.000
	3.2 Budgeting	-.068	.168	-.037	-.404	.687
	3.3 Record of income-expenditures	-.034	.025	-.119	-1.326	.189
	3.4 Budget comparison	.098	.034	.328	2.895	.005
	3.5 spending behavior	-.231	.072	-.375	-3.195	.002
	3.6 Savings	-.032	.048	-.059	-.652	.517
	3.7 Insufficient funds and solutions	.077	.032	.237	2.392	.019
	3.8 Having a deposit account	.299	.095	.310	3.152	.002

Table 11: Results of relationship between financial planning on guidelines for solving the debt burden problem

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.520	.464		-1.121	.266
	3.1 Monetary Policy	.198	.107	.240	1.855	.068
	3.2 Budgeting	.654	.310	.246	2.109	.038
	3.3 Record of income-expenditures	.053	.047	.127	1.127	.263
	3.4 Budget comparison	-.073	.063	-.166	-1.166	.247
	3.5 spending behavior	.201	.133	.223	1.510	.135
	3.6 Savings	-.222	.089	-.281	-2.481	.015
	3.7 Insufficient funds and solutions	-.060	.059	-.125	-1.008	.317
	3.8 Having a deposit account	.281	.175	.199	1.608	.112

Table 12: Results of relationship between financial planning future course of action

The financial planning factors affected the financial management in terms of the reasons for the purchase, financial planning policy, budgeting, budget comparison and savings affected purchasing decisions by focusing on quality, with Beta values of 0.385, 0.287, 0.315 and 0.299 respectively. Recording expenditures for each purchase,

financial planning policy, income-expense record and bank account accounting affected the reliability of product purchase expenditures with Beta values of 0.585, 0.356 and 0.397, respectively. Guidelines for solving the debt burden problem, financial planning policy, budget comparison, spending behavior, remedial method and having a bank

account affected the preparation of income-expenditure accounts for monthly detailed viewing to resolve debt problems with Beta values of 0.407, 0.328, 0.375, 0.237 and 0.310 respectively. Future course of action, budgeting and savings had continued to affect the current work, with Beta values of 0.246 and 0.281 respectively.

V. DISCUSSION

According to a study on the personal financial management of working-age population in the COVID 19 era, the research found that personal factors influenced financial management in terms of purchasing factors, recording expenditures, debt solutions, and future actions. It was consistent with the concept of Numphut, S. (2002) on the composition and relationship of the person and also consistent with Chatuwat, L. (2003) research on credit card usage behavior and determinants of private university students in Bangkok Metropolitan Region, found that personal factors influenced credit card use.

Factors of spending behavior affected financial management in terms of purchasing reasons, recording expenditures, guidelines for solving debt problems and future actions. It was consistent with the Ramnak, P. (1983) concept of personal financial planning for essential living expenditures and also consistent with Thipchun, T. (2005) research on attitudes and card usage behavior among credit card users of Bank of Ayudhya Public Company Limited in Chonburi Province, found that personal factors influenced attitudes and behavior of using credit cards.

Financial planning factors influenced financial management in terms of purchasing reasons, recording expenditures, debt solutions, and future performance guidelines. It was consistent with the concept of Lawrence J. Gitman, Michael D. Joehnk (2007) of effective personal financial planning in order to achieve financial goals and also consistent with Bunchai, C. (2009) research on personal finance management: a case study for working-age groups in Bangkok, found that there was a categorization of money for savings and investment expenditures, budgeting for income and expenses each month.

VI. SUGGESTION

Suggestions for the use of research results

This research was a study on the personal financial management of working-age population in the COVID 19 era to bring the research findings and models including the theory that had been discovered and applied to the working age group in other professional fields. In addition, some

additional factors should be studied in order to achieve maximum efficiency.

Suggestions for further research

For further research, this type of study should be carried out with working-age population, focusing on specific occupational groups in order to gain a clear body of knowledge and may choose to do research under normal circumstances to use as a study guideline

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Acceptation of Financial Technology in Small and Medium Enterprises in the Manufacturing Industry

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Abstract— The objectives of this research were 1) to study the factors affecting the perceived usefulness of using technology in financial transactions. 2) To study the factors affecting the perceived ease of use of technology in financial transactions. 3) To study the perceived usefulness that affect the use of technology in financial transactions. 4) To study the perceived ease of use of technology in financial transactions. The sample group was SMEs entrepreneurs who used technology to conduct financial transactions. There were 400 offices located in Bangkok. The questionnaire was used as a tool. Statistical results were calculated using Multiple Regression. The results showed that the quality of information, services and systems had a statistically significant positive impact on perceived usefulness. The quality of information, services and systems had a statistically significant positive effect on the perceived ease of use. The perceived usefulness and the perceived ease of use had a statistically significant positive impact on the actual service use

Keywords— quality of information, quality of service, quality of system, perceived usefulness, perceived ease of use, actual use of services

I. INTRODUCTION

SMEs are very important to the economic development of the country. It also helps to alleviate congestion from urbanization, diversify the prosperity to the region and make better use of local resources. Although SMEs have played an active role in Thai business society since the past, they have only just begun to stand out and be recognized by the Thai people after the country faced a severe economic crisis since 1997. As a result, many entrepreneurs of all sizes are unable to continue their business. In recent times, the government has released a number of policies and measures to save the economic crisis, and one of them is to promote SMEs' businesses. Therefore, SMEs are recognized as small and medium-sized enterprises and are the largest power group of the business sector that should play a role in the revitalization and development of the national economy.

For Thailand, small and medium-sized enterprises are considered an important part of driving the Thai economy and helping to increase domestic demand for purchases. The more domestic spending increases, the more widespread the domestic economic base is. Thailand's economy is dominated by the private sector, so SMEs are very important and account for 75% of the Gross Domestic Product (GDP). In addition, SMEs have been attracted and valued by the government in

terms of economic turnaround, which will be vital to the overall Thai economy. According to the SMEs Promotion Act of 2000, Chapter 4, this plan in Section 37 requires the Office to prepare an action plan to call this the "Action Plan for SMEs Promotion" in order to comply with the policies and plans for the promotion of SMEs under section 11(1), it is proposed to the Executive Committee for approval.

In 2020, the Office of Small and Medium Enterprises Promotion (OSMEP) revealed a new definition of SMEs that entrepreneurship was divided according to the number of employment and income. This was to reflect the characteristics of each group, including micro enterprises, to be used as a basis for the preparation of information. Economic indicators reflected the level of development of SMEs, leading to the establishment of measures and policies to promote them in accordance with the needs of each group and to make government measures accessible to micro enterprises. According to 2018 data, 2.6 million micro enterprises could generate GDP as high as 650 billion baht per year. The Government Gazette announced the Ministerial Regulation by determining the characteristics of SMEs in 2019 on January 7, 2020, resulting in the change of the characteristics of the SMEs of the country from the year 2020 onwards. The new definition of SMEs was determined by the number of employment and income as a basis, which was consistent with the current situation in the sense that the size of the enterprise and the business structure had changed and

was in line with the SMEs Promotion Act (No. 2), 2018, for the introduction of “revenue amount” as a basis for determining the size of enterprises. Previously, the definition of SMEs was based on the number of employment and fixed asset value. As developed countries enter the 4.0 economy, SMEs were increasingly adopting technology instead of hiring, causing business models to change, for example, some businesses employ less than 10 people but generate nearly 1 billion baht per year. If considered according to the criteria, this group was unlikely to be SMEs. Therefore, the definition of SMEs was important because it was used in the process of promoting entrepreneurs in many ways, for example, creating a database to issue measures or policies to help the government and used as economic indicators and to monitor situations of SMEs such as finance, exports-imports, etc. The new definition of SME is as follows:

Small enterprises are businesses in the product manufacturing sector that employ not more than 50 people or annual income not more than 100 million baht. Employment of the business (wholesale or retail) and services is not more than 30 people or the annual income is not more than 50 million baht.

Medium-sized enterprises are businesses in the manufacturing sector that employ more than 50-200 people or annual income more than 100-500 million baht. Employment of the business (wholesale or retail) and services is more than 30-100 people or the annual income is more than 50-300 million baht. However, if the employment and income do not match the nature of the enterprise, the income shall be taken into consideration. From the data processing of OSSMEP, it was found that SMEs across the country amounted to 3,070,177, representing 3,029,525 small enterprises and 40,652 medium-sized enterprises, especially in the small enterprise sector, including micro enterprises. According to the new definition, micro enterprises is a group with an annual income of not more than 1.8 million baht and employment of no more than 5 people, which is up to 2,644,561 people and it is the majority of the country's enterprises, accounting for 85.74% of the total number of entrepreneurs in the country. Most of them are private businesses, with 2,253,132 individuals, while only 391,429 are corporate entities.

For the private-sector businesses, 44.58% was the most in the commercial sector. Most of the business was wholesale and retail, repairs of motor vehicles and motorcycles, followed by 35.73% in the service sector. The majority of operations were food and beverage services and manufacturing, accounting for 19.69%. A large number of businesses were food production. Entity-based micro enterprises were found to be in the service sector, accounting for 56.33%. The largest number of enterprises was building construction, followed by the commercial sector, accounting for 31.99%. A large

number of businesses were wholesale, except for motor vehicles and motorcycles, and the manufacturing sector accounted for 11.68%. As for the food production business, when considering exports during the first 11 months of 2019 (January-November), it was found that micro enterprises and SMEs or MSMEs played a role in exports, totaling 910,089.90 million baht (13.36%) of the country's total exports. Medium-sized enterprises were valued at 549,025.80-million-baht, accounting for 8.06 percent, followed by small enterprises with a value of 258,212.40 million baht, accounting for 3.79 percent, while micro enterprises had a total export value of 102,851.70-million-baht, accounting for 1.51%. The main exports were fruits and nuts, plastics and plastic articles and motor vehicles and components. The main markets were China, Vietnam and Lao PDR. “It could be seen that the micro enterprises were essential to driving the country's economy. Therefore, clearly defining the characteristics of each group would enable the government to formulate policies and measures for effective promotion. In particular, it provided microenterprises with greater access to governmental assistance in terms of finance and capacity development in line with their business. At the same time, it would lead to the creation of databases, economic indicators and situations that clearly reflected the level of development of each group of enterprises including systematically and efficiently linking customer data and operating results between departments in the future.”

The report on the confidence index of SMEs entrepreneurs in 2020 found that the confidence index increased from June 2020 at the level of 49.3 to 51.6. This was the third consecutive month of increase and above the 50-base level for the first time since the COVID-19 crisis. Therefore, it could reflect the overall business condition of SMEs that most of them had improved from the past month. However, the situation still needs to be closely monitored because the economy was fragile due to future risks, especially the decline in purchasing power and other government aid measures was about to end. The reason for the increase in confidence index was because the volume components of production, trade and service orders, profit, investment and employment were adjusted to 56.7, 55.7, 54.5, 50.7 and 48.8, respectively.

The cost component dropped to 43.3, mainly due to concerns about the cost of goods and raw materials and utilities. The index of confidence in the manufacturing, trade and services sectors this month rose to 52.9, 51.1 and 51.4, respectively. Most of the sectors saw an increase especially in food and beverage manufacturing and tourism, travel and logistics related sectors. This was a result of government measures to promote tourism, coupled with long holidays and the

expansion of domestic flights in major cities that stimulate consumer spending. In addition, the confidence index of SME entrepreneurs had increased in all regions. At present, the Confidence Index in Bangkok and the metropolitan area stood at 48.0, an increase of 46.8 from the previous month as establishments began to operate almost normally and expenditures increased, especially in the category of necessities, but the central economy expanded less than regional economies.

Technology of financial transactions was gaining widespread attention in many countries around the world because it increased the country's added value and competitiveness by bringing innovation to create new types of financial services and improving the efficiency of existing financial services. It was also possible that these financial technologies would be applied to use a wide range of other activities. Therefore, the creation of financial innovations from SMEs is in response to the government's policy that wants to drive Thailand into Thailand 4.0. The Thai government and private sectors were very active in doing financial business.

The use of technology in financial transactions had become an important variable in management and financial management as a tool for SMEs entrepreneurs. This research focused on the use of technology in financial transactions that affected the acceptance of small and medium-sized enterprises in the manufacturing industry.

II. OBJECTIVES

- 1) To study the factors affecting the perceived usefulness of using technology in financial transactions.
- 2) To study the factors affecting the perceived ease of use of technology in financial transactions.
- 3) To study the perceived usefulness that affect the use of technology in financial transactions.
- 4) To study the perceived ease of use that affects the use of technology in financial transactions.

Research scope

- 1) Content scope

Content scope was a study of technology in financial transactions that affect the use of small and medium-sized enterprises in the manufacturing industry.

- 2) The scope of the population and the sample group

The scope of the population and the sample group were small and medium-sized enterprises in the manufacturing industry in Bangkok.

Hypothesis

Hypothesis 1: Data Quality (IQ) influenced the perceived usefulness (PU).

Hypothesis 2: Data Quality (IQ) Influenced Perceived Ease of Use (PEOU).

Hypothesis 3: Quality of Service (SQ) influenced perceived usefulness (PU).

Hypothesis 4: Quality of Service (SQ) influenced Perceived Ease of Use (PEOU).

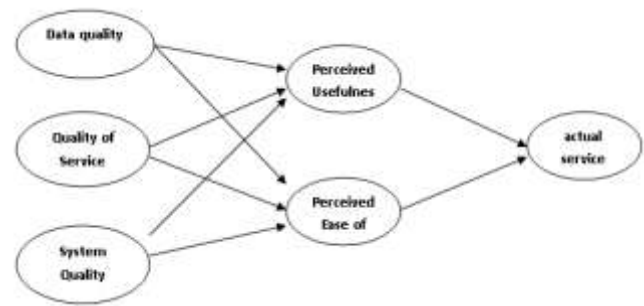
Hypothesis 5: System Quality (SQ) influenced perceived usefulness (PU).

Hypothesis 6: System Quality (SQ) Influenced Perceived Ease of Use (PEOU).

Hypothesis 7: Perceived Usefulness (PV) influenced actual service use (AU).

Hypothesis 8: Perceived Ease of Use (PU) influenced actual service use (AU).

Conceptual framework



Definition of term

Information Quality means that the information displayed in the application must be accurate and complete.

Service Quality means that user support services must be able to correct information.

System Quality means that accurate systems must be fast in use and able to connect to applications as soon as they access the service.

Perceived usefulness refers to the belief that the systemic usefulness of technology can increase operational efficiency.

Perceived ease of use refers to the belief that ease of use does not require the complexity of technology.

III. LITERATURE REVIEW

Information Quality

Information Quality is the information factor obtained from the processing of the system, thus resulting in the quality of information in terms of completeness. Information must be complete in all respects and only factual information. This was consistent with research by Mohannad, M. A. (2015) on accuracy that information must be accurate and reliable. This was consistent with the research by Basheer, M. A., Amran, M. R., Rosman, M. Y., & Amena, Y. M. (2015) on the

timesliness that information must be kept up-to-date and keep up with the needs of users. It was also consistent with research by Kanokkarn, S. N., Tipparat, L. (2015) on the quality of service.

Service Quality refers to the service provided by the user, including reliability, responsiveness and confidence, which are factors that affect service quality in terms of service reliability, image or trust in the service. This was consistent with research by Junsheng, X., Rui, L. (2014) in terms of assurance and quality control to ensure users meet standards. This was consistent with research by Rejikumar, G. (2015) on responsiveness and availability of willingness to respond to users in a timely manner. It was also consistent with research by Manchanda, A., Saurabh, M. (2014).

System Quality

Flexible system quality factor enables good system communication and responsiveness. The determinants of system quality are quality and reliability, which is a system that provides stability and trust to users. This is consistent with research by Majharul, T., Ali, Quazi., & Milind, S. (2014) that the service system in terms of stability and efficiency must be sufficient for users to conduct financial transactions in the form of M-Banking. Speed refers to the ability to respond to technology that keeps pace with demand. Zhou, T. (2012) combines design, uniqueness or individuality with various elements of art.

Perceived usefulness

Technology in financial transactions affects the belief that the usefulness of technology systems can increase the efficiency of various operations and affect the adoption of financial transaction technology, consistent with research by Viswanath, V., Davis, D. D. (2000).

Perceived ease of use

Technology in financial transactions results in the belief that ease of use without technological complexity will contribute to the perceived usefulness of the technology and affect its adoption, consistent with research by Viswanath, V., et, al. (2003).

IV. METHODOLOGY

The population used in the study was small and medium-sized enterprise entrepreneurs who used technology to conduct financial transactions. The office was located in Bangkok. A sample of 400 people was determined using the Rule of Thumb.

Sample size

Case 1: Method for determining the sample size to confirm the model using lower bounds on sample size in structural instruction by Westland (2010, p. 476) had proposed the following sample size calculation formula.

$$n \geq 50r^2 - 450r + 1,100$$

Where r was the ratio between the manifest variables or indicators variable with latent variables. In this research, Indicators = 40, Latent = 9 and $r = 4.44$, 200 samples could be calculated from the above formula as the minimum acceptable number of samples.

Case 2, in accordance with Yamane's sample size assurance (1967), therefore

$$n = \frac{N}{1 + N(e^2)}$$

n is the sample size

N is the population size.

e is the sample error.

At 95% confidence level, the proportion of error is 0.05.

Substitute the values according to the following formula:

$$\begin{aligned} n &= \frac{67,551}{1 +} \\ &= 398 \frac{67,551(0.05)}{0.0025} \end{aligned}$$

It was concluded that the sample size of 400 samples was sufficient to convincing the findings. The samples were used to cover both cases.

V. CONCLUSION

The results of the basic statistical analysis of the preliminary data from 400 entrepreneurs were as follows: The respondents were more males than females (63%) and the age group between 31-40 years old (49%). Most of the samples were at the bachelor's degree level (61%). However, the operating period of the business would be between 2-5 years at most (52%). Businesses of small and medium-sized enterprises were the most companies (63%). The largest number of shareholders in the business was 3 people (67%). Annual income of the business did not exceed 100 million baht (82%). The maximum number of employees was not more than 50 people (91%).

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-4.437	.720		-6.159	.000
	คุณภาพข้อมูล1	-.088	.030	-.094	-2.891	.004
	คุณภาพข้อมูล2	.145	.058	.169	2.510	.012
	คุณภาพข้อมูล3	-.047	.062	-.055	-.766	.444
	คุณภาพบริการ1	.308	.053	.360	5.791	.000
	คุณภาพบริการ2	.251	.051	.318	4.915	.000
	คุณภาพบริการ3	-.179	.041	-.157	-4.334	.000
	คุณภาพบริการ5	.348	.035	.389	9.849	.000
	คุณภาพระบบ1	.175	.041	.194	4.227	.000
	คุณภาพระบบ2	1.073	.148	.463	7.255	.000
	คุณภาพระบบ3	-.200	.075	-.230	-2.680	.008
	คุณภาพระบบ4	.345	.066	.400	5.263	.000

Table 1 The results of the testing of factors affecting the perceived usefulness of technology in financial transactions

The results of the analysis of factors affecting the perceived usefulness of technology in financial transactions were considered as follows: in terms of data quality, data updates, data precision and data integrity as well as data attribution, the Standardized Coefficients Beta values were 0.094, 0.169 and 0.055, respectively; in terms of quality of service, reliable information delivery, resolving ability and quick response to inquiries, the beta values were 0.360, 0.318, 0.157, and 0.389, respectively and in terms of system quality, transaction display, fast connection, security (code) protection and customer confidentiality, the beta values were 0.194, 0.463, 0.230 and 0.400 respectively.

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.437	.720		-.607	.544
	คุณภาพข้อมูล1	-.088	.030	-.100	-2.891	.004
	คุณภาพข้อมูล2	.145	.058	.179	2.510	.012
	คุณภาพข้อมูล3	-.047	.062	-.058	-.766	.444
	คุณภาพบริการ1	.308	.053	.381	5.791	.000
	คุณภาพบริการ2	.251	.051	.336	4.915	.000
	คุณภาพบริการ3	-.179	.041	-.166	-4.334	.000
	คุณภาพบริการ5	.348	.035	.412	9.849	.000
	คุณภาพระบบ1	.175	.041	.206	4.227	.000
	คุณภาพระบบ2	.073	.148	.033	.492	.623
	คุณภาพระบบ3	-.200	.075	-.243	-2.680	.008
	คุณภาพระบบ4	.345	.066	.424	5.263	.000

Table 2 The results of the test of factors affecting the perceived ease of use of technology in financial transactions

The results of the analysis of factors affecting the perceived ease of use of technology in financial transactions were considered as follows: in terms of data quality, data updates, data precision and data integrity, including data attribution, the Beta values were 0.100, 0.179, and 0.058, respectively; in terms of quality of service, reliable information delivery, resolving ability and quick response to inquiries, the Beta values were 0.381, 0.336, 0.166 and 0.412 respectively and in terms of system quality, transaction display, fast connection, security (code) protection and customer confidentiality, the beta values were 0.206 0.033 0.243 and 0.424 respectively.

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error			
1	(Constant)	.687	.157		4.374	.000
	การรับรู้ประโยชน์2	.863	.081	.759	10.680	.000
	การรับรู้ความง่าย1	-.863	.118	-.717	-7.337	.000
	การรับรู้ความง่าย2	.863	.081	.759	10.680	.000

Table 3 The results of perceived usefulness and perceived ease of use affecting the use of technology in financial transactions.

The results of perceived usefulness affecting the use of technology in financial transactions were considered as follows: in terms of improving efficiency and reducing the time of financial transactions, the beta values were 0.759. The perceived ease of use affecting the use of technology in financial transactions were considered as follows: In terms of learning and self-understanding, along with simple and easy-to-use steps, the beta values were 0.717 and 0.759, respectively.

VI. DISCUSSION

From the study of technology in financial transactions that affect the acceptance of SMEs entrepreneurs in the manufacturing industry, it was found that data quality influenced the use of technology in financial transactions, in line with research by Mohannad, M. A. (2015) on user satisfaction with data quality. Basheer, M. A., Amran, M. R., Rosman, M. Y., & Amena, Y. M. (2015) examined the factors that determine post-implementation satisfaction and intention to use. Kanokkarn, S. N., Tipparat, L. (2015) studied the relationship between quality management, trust, and behavioral intentions in customers' use of Internet banking. Quality of service influenced the use of technology in financial transactions, in line with research by Junsheng, X., Rui, L. (2014) studying the quality of online payment systems among users. Rejikumar, G. (2015) studies the perceived quality of service in the context of e-banking. Manchanda, A. and Mukherjee, S. (2014) studies information systems in order to provide services quickly to customers and keep them competitive.

The quality of the system influenced the use of technology in financial transactions, consistent with research by Majjarul, T., Ali, Q., & Milind, S. (2014) on adoption of technology for the use of mobile banking in financial transactions. Zhou, T.

(2012) studies how to build user trust in facilitating banking transactions through their mobile phones.

Perceived usefulness and perceived ease of use influenced the use of technology in financial transactions, consistent with research by Viswanath, V., Davis, DD (2000) & Viswanath., V., et. al. (2003) on perceived usefulness and intentions of use affecting user acceptance. Samuanklang, T. (2016) studied how to measure the success of information systems leading to perceived ease of use and usefulness until finally acceptance. Karaket, W. (2016) studied the adoption of financial technology for mobile payments.

VII. SUGGESTIONS

Suggestions for further utilization of research results

Academic benefits: Research on "Technology in financial transactions affecting the acceptance of SMEs entrepreneurs in the manufacturing industry." was conducted to expand the results of the study on financial management planning of SMEs in the manufacturing industry and to know how to operate and control the financial situation as well as how to use the money properly.

Administrative benefits: The research on "Technology in financial transactions affecting the acceptance of SMEs entrepreneurs in the manufacturing industry" was carried out to determine financial management guidelines to meet the appropriateness among SMEs in the manufacturing industry and financial institutions, including using it as information for developing financial strategies

Suggestions for further research

For further research, this kind of study should be conducted with large businesses in order to add to the knowledge that may lead to the fact that "Will it be the same as this study?" or may increase the alternative opportunity of adopting the technology in other related financial transactions. There are also some factors that should be studied further in order to maximize business efficiency

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“COVID-19 treatment is a war” through a conceptual metaphor

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Abstract— The Coronavirus Disease 2019 or Covid-19 outbreak is a pandemic that has affected the world. Thailand therefore established "Center for COVID-19 Situation Administration" as a channel for communication between the government and the people.

The author aims to study a metaphor about the treatment of COVID-19 in Thailand as how does such metaphor reflect the government's views on the treatment of COVID-19 by using Lakoff & Johnson's linguistic metaphor theory and collecting the information on government and government agencies communications during the period from January 2020 to April 2021. The results showed that an important metaphor [Treating COVID-19 is a war] is used, which reflects the concept or illustrates the view of the government that “COVID-19 treatment is a war” that highlights the government's intent to give people a picture of the win and lose in the battle against an unseen enemy like COVID-19.

Index Terms— COVID-19, Conceptual Metaphor

I. INTRODUCTION

The outbreak of the Coronavirus Disease 2019 or COVID-19, which stands for "coronavirus disease starting in 2019", is a pandemic started in December 2019 in Wuhan, People's Republic of China. The infection was subsequently found all over the world [1], caused fear and affected health, society and the economy of the population. In January 2020, there was a pandemic which was rapidly spreading infection around the world. According to the announcement of the World Health Organization (World Health Organization) [2] on April 1, 2021, 129,571,925 people around the world have been infected and 2,830,203 died from the disease. The outbreak is not only a threat to the lives and health of the global population but also a huge impact on tourism sector, airline sector, export sector, oil industry sector entertainment industry as well as small retailers which are parts of mechanism driving society and the economy, including Thailand which are being affected as well.

In Thailand, a committee for the center for situation administration of the Coronavirus Disease 2019 (COVID-19) has been established in the name of “Center for COVID-19 Situation Administration” (CCSA) which was promoted into Special work under Section 7 of the Emergency Decree in order to responsible for controlling and resolving the emergency situation from the virus with General Prayut Chan-o-cha, Prime Minister, as chairman. The implementation of CCSA has been clarified through the Thai Task

Force TV to prepare people to be prepared to deal with the arisen crisis.

From this situation, it was found that the government is aware and focuses on the use of various measures for prevention and solution to allow people to be safe from the disease. One of the methods to support in the movement that is expected to make people understand and recognize prevention and solution approaches is “communication”. The communication between governments and people in crisis situations is of great importance which requires both science and art because it can affect the psychology of the people.

From the collection of the use of government language appearing in various media, such as social media, television, radio broadcasting, newspapers and public relations media of government agencies from January 2020 to April 2021, it was found that the government chose a metaphor of "War" to convey "COVID-19 treatment". The author therefore will present on the issue to illustrate the process of creating discourses from language grammar reflected from the government's view on "COVID-19 treatment" based on the concept of linguistic metaphor.

II. WHAT IS COGNITIVE LINGUISTIC?

Metaphor is a strategy in using language to convey meaning, ideas and emotions from sender to the receiver. The study of metaphor is divided into 2 concepts as follows:

1. Traditional theory, which describes metaphor from interpreting forms of language that views metaphor as the use

of pictorial language. That is, the meaning of the language form is used in a comparative way in order to create an image, create an image in the mind and be able to convince the audience by expanding the meaning of the word from the original meaning which creates an analogy. Metaphor is therefore a text that shows a comparison of two things that have the same properties or differ in the structure of the comparison which often contains the word *like is, as if, is* in the language structure. This concept of metaphor has influenced the study of metaphor in literature and literature because metaphor is a figure of speech. Most language users generally understand that metaphor is a literary tactic that can decorate words to be elegant and melodious [3].

2. Cognitive linguistic: The study of cognitive linguistic metaphor is a concept arose according to the concept of Lakoff & Johnson [4] stated in the book *Metaphor We Live By* that metaphor occurs in the common language of human communication and there is no linguistic structure that compares one thing to another but the use of language in everyday life is all metaphors which is directly related to the system of thinking, society, emotions, and feelings of human beings. Such matter is not imaginary yet something that can be explained in a systematic way.

Kövecses [5] said that the conceptual metaphor is the understanding of the connection of ideas between meaningful words from one semantic circle to another semantic domain (Conceptual Domain) by means of a semantic cross-linking of the source meaning domain of the original meaning before being compared as a regular meaning. As for the destination meaning circle, it will be a new meaning that needs to be conveyed. Language users will use comparative meanings and the use of this comparative semantic language independently. Lakoff & Johnson [4] showed the conceptual system of people in society where English language is used as follows:

Your claims are **undefensible**.

He **attacked** every weak point in my argument.

His criticisms were **right on target**.

I **demolished** his argument.

I've never **won** an argument with him.

You disagree? Okay, **shoot!**

From the above example, the use of comparative words such as *like, is, alike* was not found. However, the example shows that War-related terms such as *undefensible, attacked, right on target, demolished, won, shoot* are used to refer to ideas.

These reflects the views of the language user that **the argument is a war** that brings out the properties of the original meaning circle of the war, which is the win-lose feature and the destructive battle to link to the properties of the destination circle, which is an argument, to explain what does an argument look like.

In addition, Lakoff & Johnson [4] classified metaphors into 2 levels as follows:

1. A metaphor at the word level is called metaphorical expressions refers to words that are comparative which language users commonly use to communicate in everyday life

2. A metaphor at the conceptual level are called conceptual expressions refers to ideas which are characterized as the analogy in the perception system or the user's perceptual system.

Both levels of metaphor are related, that is, humans have a metaphorical thinking system. When we have such a system of thinking, our thinking, our worldview, our everyday expressions, including the use of language in our communication, are characterized as metaphorical. Therefore, the metaphors we use to communicate in our daily lives are important evidence that we can reflect on this system of thought or the concept of language users can know that how do linguists in society have a system of thinking or concepts about various issues.

Lakoff & Johnson's linguistic metaphor analysis [4] shows the relationship of language usage to the human cognitive system. Humans have a systematic mindset that can take things that are far away to compare to what is nearby or take the abstract to make a concrete comparison through the use of language communicated in daily life. Lakoff & Johnson's study of linguistic metaphors is highly regarded until more and more people are interested in expanding education that is connected to various sciences.

III. COVID-19 TREATMENT IS A "WAR"

The author analyzed the language depicting war metaphors appeared in various media, including social media, television, radio broadcasting, newspapers and government publication and government agencies in the period from January 2020 to April 2021 to describe the role of the metaphor of war in the meaning of war in the treatment of COVID-19. This will lead to an understanding of the conceptual system of how the government sees the treatment of COVID-19.

The authors analyzed the nature of war from language depicting war metaphors in the treatment of COVID-19 that make it possible to explain the government's viewpoint on the treatment of COVID-19 as the elements of war with 7 elements as follows.

1. Phenomenon of war
2. A person or participant in a war
3. Weapons used in war
4. Places of war
5. The outcomes of the war
6. Actions in war

7. The conditions of the phenomenon of war
From the analysis of the meaning of the language depicting war metaphors, the government's perceptions on the treatment of COVID-19 can be summarized as follows:

Elements of war	Characteristics and meaning of the treatment of COVID-19	Language depicting war metaphors
Phenomenon	Covid-19 epidemic situation	Battle
A person or participant in a war	Doctors, nurses, public health, personnel, government agencies	Brave, lab coat warrior, lab coat r general, command center, outpost government, outpost, vanguard
Weapons or tools of war	Tools or things that help manage the spread of COVID-19	The use of strong medicines, vaccines are important weapons, the ultimate measure
Places of war	Covid-19 epidemic areas	Risk areas, battlefields
The outcomes of the war	Expectations or outcomes in the treatment of COVID-19	Thai wins, doctor wins, we win, Thailand must win, we will win together.
Actions in war	Using various approaches to manage the spread of COVID-19	Guard set, no guard down, fight, battle, attack, junction, attack, offensive.
The conditions of the phenomenon of war	The conditions of the situation in the management of the COVID-19 epidemic	Severe, heavy, loss

Table 1 Characteristics of the meaning of war and the treatment of COVID-19 of the language depicting war metaphors organized according to the elements of war.

According to the study, the metaphor [COVID- 19 treatment is a war] is a adaptation of words related to the meaning of war as a reference of “COVID-19 treatment” with “War” as the source domain and treatment for COVID-19 as a target domain for people to understand the concept of treating COVID-19 through "war". This metaphor describes the situation of the treatment of COVID-19 through the viewpoint of war that this metaphor can represent the mapping between the analogy and the comparable as follows:

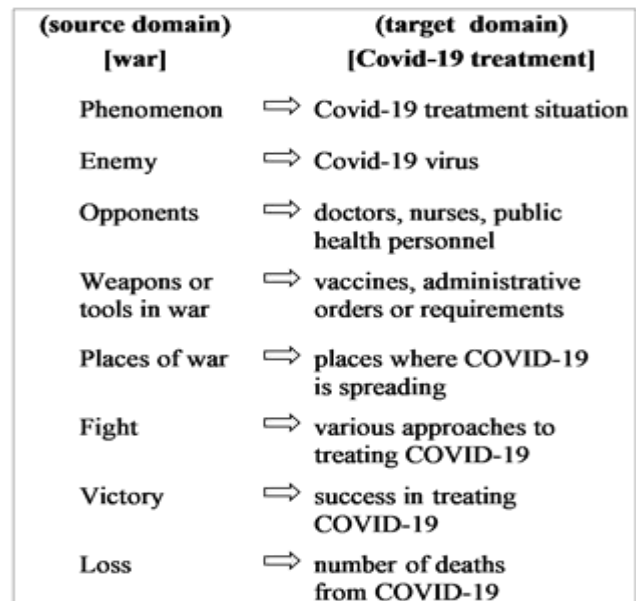


Figure 1 Visual metaphor [Covid-19 treatment is a war]

From the picture above, it is shown that [COVID-19 treatment is a war] is a metaphor arises from the comparison of the similar and interrelated characteristics of the two concepts in pairs. It was found that the government compared the situation of COVID-19 treatment to a war; having enemies as the COVID-19 virus; Doctors, nurses and health personnel are the opponents of the enemy; Weapons or tools in war are vaccines, administrative orders or requirements; The place of war is where COVID-19 has spread; The battle is compared to the use of various approaches of treating COVID-19; The success of COVID-19 treatment is victory and the number of deaths from COVID-19 is a loss in war.]

Based on the analysis of metaphors that compare COVID-19 treatment to war, the appeared words represent the concept of COVID-19 treatment in thinking system that the government applied the concepts experienced in combating warfare to compared or understood in the treatment of COVID-19 for communicating with the public. This process of comparison is called “conceptual metaphor”, which is transmitted through the use of language. The results of the study reflect the conceptual metaphor of the government that [COVID-19 treatment is a war]

IV. THE WORLD DECLARED WAR ON COVID-19.

Thailand is not the only country that sees "COVID-19 is the enemy" and the government is at war with it. Many countries around the world are also declaring war on the COVID-19 virus attacking countries which be seen from the use of the

language of war to deal with the widespread epidemic crisis. For example;

US President Joe Biden [6] said that “a new generation of American men and women, working with the day’s — working with today’s latest technology, is going to build a new arsenal to defeat the current enemy of world peace, health, and stability: COVID-19.”

Chancellor of the Federal Republic of Germany Angela Merkel [7] mentioned the medical personnel who have to fight with COVID-19 that “2020 was a year of worry and uncertainty. But it was also a year when so many went above and beyond themselves without asking any attention for it. We have seen this in the doctors, nurses and care workers in our hospitals, nursing homes and other facilities. *We have seen it in the employees of our health offices, who found themselves suddenly thrust into the centre of the battle against the virus*” President of the French Republic Emmanuel Macron [8] mentioned the epidemic crisis in his country as “Nous sommes en guerre, en guerre sanitaire certes. Nous ne luttons ni contre une armée ni contre une autre nation, mais l’ennemi est là, invisible, insaisissable, et qui progresse.”

President of the People's Republic of China Xi Jinping [9] declared the "People's war with the COVID-19 virus as “The fight against COVID-19 is an all-out war that calls for a systemic response to coordinate pharmacological and non-pharmacological interventions.” Similarly, Singapore's

Prime minister, Lee Hsien Loong, [10] saw the treating COVID as a war that “we must continually adjust our strategies and raise our game to keep COVID-19 under control.” as can be seen from the solution in such situations that the strategy must be adjusted which is a using of word to fight war.

The above examples show that the supreme leaders of many countries chosen the language of war in formulating policies to deal with the COVID-19 situation which resulted in the "war language" became a phenomenon that spreads rapidly like the COVID-19 virus. This raises the question of why so many countries chose war language to create a framework for linking it to the treatment of COVID-19.

The use of war metaphor by addressing the physical problems of the epidemic with control is a framing to describe a health crisis as a form of militaristic framing, or security to emphasize the people to build solidarity in dealing with the epidemic of the disease.

The explanation of the crisis situation or treatment for COVID-19 with a war analogy became a common occurrence all over the world as a ready-made narrative plot. This probably won't be the last time that war language has been used to compare the treatment of plagues.

V. CONCLUSION

First, in this academic article, the author studied metaphors that the government uses to communicate "COVID-19 treatment" by using the conceptual framework of linguistic metaphor. The found important metaphor was [COVID-19 treatment is a war] which is the use of language to create ideas through creation of government metaphor in communicating with people to reflect the framework that connects the situation of the COVID-19 outbreak with a war situation where people in society must help fight against the hostile COVID-19 virus. Various policies, regulations and measures to use as a weapon in the battle to win from this virus war were determined.

Second, the use of such metaphors can also explain the functions of metaphors as Goatly [11] classified the functions of metaphor into 3 main areas as: 1. The function of conveying ideas; 2. The function of human relations and 3. The function of composing. The way government chooses metaphors to communicate the COVID-19 treatment through the concept of war in line with the task of conveying ideas because the government sees a distinctive feature that has similarities between the two concepts. Therefore, the concept of fighting and making war was chosen to explain treatment for COVID-19 to help infected person or the public to see pictures about the treatment of COVID-19. This may be intended to help the infected person stay motivated to fight the disease affecting the psychological and adaptation of the infected person.

Last, considering the way the supreme leaders of many countries, including Thailand use the language of war to compare the situation of the COVID-19 epidemic, it is possible to say that [COVID-19 treatment is a war] is a universal concept exists in the whole human perception system

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A causal relationship model influences innovation in Thai herbal industry

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Abstract— The objective of this research was to present a causal model that influences innovation in the Thai herbal industry. The study process of this research was a mixed method. The quantitative research consisted of 14 observable variables. Data was collected from 280 companies in the herbal industry of Thailand. This qualitative research method was collected by a focus group from seven experts working in corporate innovation or in-house herbal product development and research to confirm the model derived from empirical data. The results of the research were as follows: 1. The causal relationship model affecting innovation in the Thai herbal industry was goodness of fit with empirical data. Index as follows: $\chi^2 = 136.72$, $df = 63$, $\chi^2 / df = 2.17$, $CFI = 0.93$, $GFI = 0.934$, $SRMR = 0.0457$, $RMSEA = 0.065$. From the model, the factors influencing innovation in the Thai herbal industry were knowledge management, marketing adaptation and business adaptation, respectively.

Keywords— Herb, Herb industry, Innovation

I. INTRODUCTION

At present, the Thai government has a policy to promote Thailand as a hub for herbs in the ASEAN region by 2025. There was a clearer plan for the development of Thai herbs by specifying Thai herbs as the main products for export. Thailand had encouraged research studies and searches for herbs that had outstanding properties and the use of herbs that had been discovered to produce a product that was reliable and accepted both domestically and internationally [1]. The study by the research team found that the important market situation in the herb export was Japan, China and America. The popular herbal consumption of the younger generation plays an important role in increasing the value of herbal products because as a health care alternative, they are viewed as safe and natural. It was estimated that each year the trade of medicinal and spice products to the world market could reach US \$ 10 billion. Studies showed that the herbs of Thailand were the main components of the food and beverage industry, cosmetic industry, food supplement industry and the world medicine industry. Thai herbs that are popular in the Product Champion level are turmeric, Zingiber cassumunar Roxb, black finerroot and Centella asiatica. The herbs that are in demand since 2019 are paniculata, ginger and garlic. Therefore, Thailand saw that there was a tendency for herbs to be more demanding on the world market and could generate

income and returns for farmers and entrepreneurs in Thailand [2]. The information on domestic and export market for herbs and herbal products in 2016 could be summarized as Figure 1. In addition, the export value of Thai herbs, the researcher also found that it could raise the level of the Thai herb industry to have higher quality, which was in line with the study of the Kasikorn Research Center [3] on the analysis of market opportunities for herbal products. However, the major challenge for operators was to be reliable in various aspects, especially manufacturing standards, quality, safety, and creating a positive consumer experience.

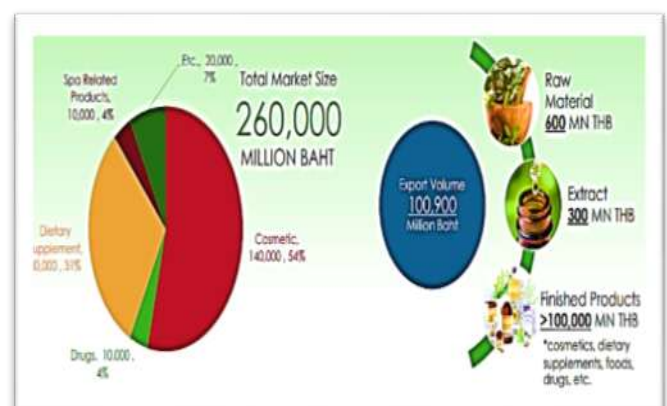


Figure 1 shows the export value proportion of the herb industry of Thailand [4]

The quality of the herb business has been upgraded as follows:

- Standardized production control
- Ability to keep up with market trends
- Creating a good customer experience
- Communication about the safety of using herbs to the customers

In-depth study from the Information and Technology Center, Office of Small and Medium Enterprises Promotion [3] found that the herbal industry had a total of 1,316 entrepreneurs, comprising 1,305 SMEs (99.16%). As for SMEs employment, the herbal industry employed 24,209 people (82.28%) of the total employment in the pharmaceutical and herbal industries [5]. The study found that most of the herb industry was SMEs industry, so it needed to be developed to upgrade the product to be able to compete with herb exporters from different countries. Therefore, in order to upgrade the industry, SMEs needed to create innovations within the industry to achieve product upgrading and product development. In order for the Thai herbal industry to be innovative, researchers were interested in identifying the factors that influenced innovation in the Thai herbal industry to bring the research results to develop innovative herbal industry in Thailand systematically. It also helped to strengthen the Thai herbal industry and compete with manufacturers from many countries.

II. RESEARCH OBJECTIVES

The objective of this study was to present a model of causal factors influencing innovation in the Thai herbal industry.

III. LITERATURE REVIEW

In this research, the researchers followed the research framework obtained from in-depth interviews with reliable entrepreneurs along with studies from conceptual reviews, theories and related research for the development of the research framework. This research study had 3 main components: 1 knowledge management 2 business adaptation and 3 marketing adaptation. All 3 components affected innovation in the herb industry in Thailand. Figure 2 shows the conceptual framework of the research.

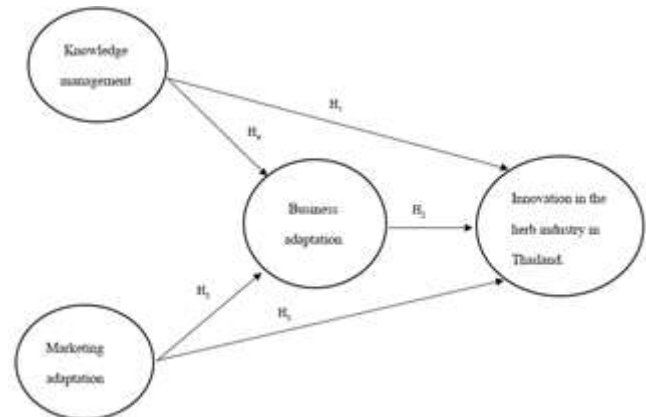


Figure 2 shows the conceptual framework of Causal Relationship Model Affecting Innovation in the Thai herbal industry.

The researchers had created a conceptual framework from the synthesis of theories and related research. It was found that "Causal Relationship Model Affecting Innovation in the Thai herbal industry" was caused by 4 factors as follows.

1. Innovation in the herb industry was due to the adaptation of entrepreneurs in the herb industry where they need new processes to develop or new things that need to emerge [6]. Moreover, the innovation of the herbal industry required the development of the fundamental stages of creating an organizational strategy for dealing with innovative creativity, being proactive, risk tolerance and making the right decisions [7]. There must be entrepreneurs who were involved in new ideas in development to be able to contribute to the support of products and services or technological processes that meet customer needs [8]. From the research team's literature review, it was found that the concept of the researcher on the factors affecting innovation in the herbal industry was consistent. In terms of entrepreneurial adaptation, innovation was required to be involved in the development of the organization in order to gain a business advantage [9],[10]. This innovative influence may increase as the competitive environment changes [11], [12], [13]; [14]; [15]. The researchers also found that research by Jeff Y-J Chen, & Boris Urban, 2018[16] demonstrated entrepreneurial adaptation by adopting innovation to achieve sustainable SMEs performance and increase the competitiveness of the organization. The importance of innovation in the organization was vital to the survival of the organization. In research synthesis, it was found that there were four factors affecting innovation in the herb industry: 1 product innovation 2 innovative processes 3 marketing innovations and 4 management innovation
2. Business adaptation was the adaptation of the entrepreneur, which was the guideline for doing business in order to make

the organization successful [17]. Entrepreneurial adaptation was an important step forward for SMEs before developing their marketing activities. Entrepreneurial adaptation would focus on developing new products, creating products and finding strategies for dealing with market competitors [18]. Entrepreneurial adaptation required innovative creativity, risk tolerance and a proactive approach from competitors [19]. The company would be more efficient if SMEs entrepreneurs had the ability to innovate and operate the business with new models [20]. The concept of both innovation and creativity was essential if SMEs would like to compete even better. In synthesizing relevant research, the researchers found three factors of entrepreneurial adaptation: 1 innovation 2 working proactive and 3 business risks.

3. Knowledge management was a mechanism for transferring the capability and knowledge of the company to learning and techniques, including new methods for developing knowledge and increasing competitive advantage. Knowledge management was the primary goal of an organization. Learning was essential to the development of any organization, so every organization supported and encouraged continuous learning [21], [22], [23], [24], [25], [26], [27]. Knowledge management of the herb industry was due to the knowledge transfer process that was deeply embedded in the industry personnel. Therefore, the researchers had synthesized 3 factors affecting the cognitive management: 1 focusing on learning 2 shared vision and 3 Open-mindedness.

4. Marketing adaptation was the cornerstone of marketing theory. It was recognized that the marketing concept was the cornerstone of modern management and marketing strategy [28]. According to the company's marketing concept, the aim was to make products and services meet customer needs, ensuring that products and services could be responsive and effective than competitors. Market-oriented companies understood customer needs by coordinating and sharing relevant information as well as creating superior value for their customers [29]. Companies should follow a more efficient and effective strategy than competitors in order to achieve defined goals and profitability. Marketing adaptation thus enables companies to take immediate action that enables them to respond to market dynamics by offering innovative new products and services [30]. Marketing adaptation was an entrepreneur's effort to understand and satisfy the final needs. Essentially, the needs of the customer were clearly accepted so that they could meet the needs of the customer. Organizations must have extensive marketing knowledge and an effective learning model [31]. In matters of customer adaptation, competitor adjustment and coordination, the organization must have integrated marketing knowledge. The

company must develop products and services to meet customer needs and satisfy customers, as well as gain more market share and create a sustainable competitive advantage [32]. Responding to consumer needs was done by using information obtained from marketing information, which could increase consumer satisfaction and ensuring that the organization had more opportunities to achieve its performance goals [33]. Market adaptation was a means of creating corporate sustainability because of the advantage in creating better value for customers. In other words, such a marketing strategy would give entrepreneurs the tools to ensure performance that is superior to their competitors. In the herbal industry market adjustment, there were 4 factors that affected the adjustment: 1 competitors' adaptation 2 customer adaptation 3 coordination and 4 business images for recognition.

From the study of related research, the researchers had synthesized the conceptual framework as shown in

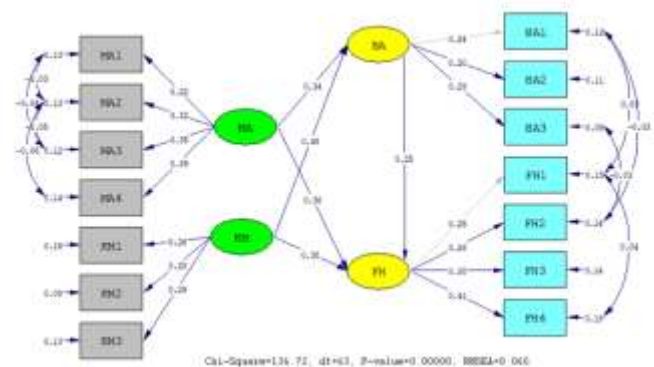


Figure 3 shows Causal model for innovation in the herbal industry in Thailand

Figure 2 and There were five hypotheses from researchers:

- 1.H₁ Knowledge management influenced innovation in the herb industry.
2. H₂ Business adaptation influenced innovation in the herb industry.
3. H₃ Marketing adaptation influenced innovation in the herb industry.
4. H₄ Knowledge management influenced business adaptation.
- 5.H₅ Marketing adaptation influenced business adaptation.

IV. RESEARCH METHODS

This research was a mixed method. The quantitative research was collected from 280 samples from 1,316 companies in the Thai herbal industry [5]. There were 14 observable variables [34], [35], [36], [37]. from the herbal industry group of Thailand using convenience sampling method. The tool was used as a closed-ended questionnaire with a Likert 5-grade

scale scoring with IOC of 0.8-1.00 and Cronbach's alpha of 0.85. The questionnaires were distributed manually and electronically. Qualitative research was a focus group by interviewing seven experts working in the field of innovation of the organization or in the development and research of herbal products in the organization. This was a selection of experts in the form of judgment sampling. There were selection criteria: the sample group must be at the supervisor level or above and work experience in organizational innovation management or in the part of the development and research of herbal products for at least 10 years in order to confirm the model obtained from quantitative research

V. RESEARCH RESULTS

The results of the research team study using the Structural Equation Analysis (SEM) method showed that there were three latent variables and 13 observable variables. The interpretation of the results by Lisrel was confirming the consistency of empirical data by considering the Goodness of Fit. The results showed that $\chi^2 = 136.72$, $df = 63$, $\chi^2 / df = 2.17$, CFI = 0.93, GFI = 0.934, SRMR = 0.0457, RMSEA = 0.065, which were considered to pass the criteria of [32], [33] and the prediction coefficient of R2 was 91.6%, shown in Figure 3.

From Figure 3, it was found that Causal Relationship model Affecting innovation in the herbal industry in Thailand had Goodness of Fit with empirical data according to the criteria of [38] and total effect as shown in Table 1.

Table 1 shows the total effect of each relationship influence.

Hypothesis	Direct Effect	Indirect Effect	Total Effect	Decision
H ₁ Knowledge management influenced Innovation in the herb industry	0.38	0.12	0.50	Accepted
H ₂ Business adaptation influenced Innovation in the herb industry	0.25	-	0.25	Accepted
H ₃ Marketing adaptation influenced Innovation in the herb industry	0.36	0.085	0.445	Accepted
H ₄ Knowledge management influenced	0.48	-	0.48	Accepted

Hypothesis	Direct Effect	Indirect Effect	Total Effect	Decision
Business adaptation				
H ₅ Marketing adaptation influenced Business adaptation	0.34	-	0.34	Accepted

From Table 1, we found that there were five hypotheses and all five hypotheses were accepted. There were effect sizes that could be sorted from descending as follows: 1) H₁ Knowledge management influenced Innovation in the herb industry. The effect size was 0.50 which was direct effect of 0.38 and indirect effect of 0.12. 2) H₄ Knowledge management influenced Business adaptation. The effect size was 0.48 which was direct effect of 0.48 and no indirect effect. 3) H₃ Marketing adaptation influenced Innovation in the herb industry. The effect size was 0.445 which was direct effect of 0.36 and indirect effect of 0.085. 4) H₅ Marketing adaptation influenced Business adaptation. The effect size was 0.34 which was direct effect of 0.34 and no indirect effect. 5) H₂ Business adaptation influenced Innovation in the herb industry. The effect size was 0.25 which was direct effect of 0.25 and no indirect effect.

Results of qualitative research

The results of a focus group interview of seven experts working on corporate innovation or in the field of herbal product development and research in the organization to confirm the model derived from empirical data, the results were the same, the model was accepted. Innovation in the Thai herbal industry must start from a good origin, that is, specialized knowledge in the field of Thai herbs, which consists of Thai traditional medicine recipes of the personnel within the organization. In Thai traditional medicine, it consisted of knowledge ranging from types of herbs, specific properties of herbs, how to optimize the properties of the herbs, the extraction of substances in the herbs, including the cultivation methods and methods of seeking herbs. Since ancient times to the present, a lot of knowledge had been created, but there were very few people who were knowledgeable and expert in herbs in Thailand. Therefore, in the herbal industry of Thailand, it was the first priority in knowledge management, especially the transfer of knowledge from generation to generation in order to maintain the knowledge of herbs in Thailand and to be able to further develop the application of Thai herbs to modern treatment. Therefore, it was consistent with the research results in the sense that knowledge management had the highest influence

and the second rank of all influencing factors. In the center of innovation in the Thai herbal industry, it was found that the factors that influenced the innovation were marketing adaptation and business adaptation. From the opinion of the experts commented that the innovation of the herb industry in Thailand, apart from the upstream factor, that is good knowledge management, the factors that had direct effect on herbal industry innovation were market adaptation and business adaptation. This was because nowadays, the direction of consumer needs, both domestic and international, especially Asian countries, were paying attention to the issue of physical health as a priority. Most consumers value natural herbs and refuse to get the chemicals into their bodies. When considering the growth rate from the export value of Thai herbs, which was in line with the data of the Department of International Trade Promotion, Ministry of Commerce (36), indicating that in 2020, the export value of Thai herbs was in the hundreds of thousands of million baht. Thai herbs in the food supplement group had total utilization and export value of more than 80 billion baht. The spa group and its products were worth approximately 10,000 million Baht. Traditional medicine group based on Thai traditional medicine wisdom had a value of approximately 10,000 million Baht. Hence, experts pay more attention to the adaptation of the market in terms of being able to keep up with the upcoming opportunities. In addition, the business adaptation factor of the domestic herb industry was highly emphasized as most of the companies in Thailand were still SMEs, resulting in a delay in the business adaptation and did not keep up with consumer demand. This was in contrast to medium to large companies that can adapt more quickly. The herb market was still in high demand. To achieve innovation in the herbal industry in Thailand, industry companies need to make adjustments in both marketing and business adaptation. If the herbal industry in Thailand had no innovation, the Thai herbal industry would not be able to compete with many innovative competitors in many countries.

VI. CONCLUSION AND DISCUSSIONS

This research was a research study to determine the causal relationship models that influence innovation in the Thai herbal industry. This research was a mixed method. In the study of knowledge management, marketing adaptation and business adaptation factors influencing Innovation in the herb industry, it could be summarized and discussed according to the following hypothesis:

H₁ Knowledge management influenced Innovation in the herb industry. From the study of causal models that influence innovation in the Thai herbal industry, it was found that, the fundamental factor that directly influences innovation was

knowledge management. This was because the herb industry in Thailand was different from other industries. An indispensable key factor in this industry was knowledge management, because innovation required knowledge that was passed down from generation to generation. In the herb industry, knowledge had been accumulated and had been passed down for more than 500 years. In each era, there would be additional knowledge, or innovation, which could be said all the time, as could be seen from the application of herbs to the treatment. Therefore, innovation in the Thai herbal industry required knowledge management factors. The study was consistent with M. Amin [21] I.Murtala and M. Shariff [22] and S. Suratna [23].

H₂ Business adaptation influenced Innovation in the herb industry. According to the results of the study, it was found that the business adaptation of the companies in the herbal industry of Thailand was mostly SMEs. In most cases, adaptation could be slow, which directly affected industry innovation. In our study, it was found that the business adaptation of each company was different from that of the large companies. This was because large companies were involved in research and development that could continuously innovate. On the other hand, smaller companies adapted by embracing external innovation and making business adjustments to achieve internal innovation of the company. Therefore, the innovation of SMEs companies was slow and required market changes and the knowledge of the personnel in the company to directly affected the innovation in the Thai herbal industry. According to studies, our research was consistent with that of Susanto and Wasito [20].

H₃ Marketing adaptation influenced Innovation in the herb industry. In our study, it was found that, in addition to knowledge management, the market dynamics factors directly affected the innovation of the Thai herbal industry. The qualitative and quantitative results suggest that SMEs in the Thai herbal industry need market dynamics before innovation in their companies. As approximately 80% of companies were SMEs, innovation required market dynamics before innovation could occur within the company. This was because SMEs companies in Thailand still lack research and development but relied only on conveying the body from generation to generation and would adjust innovation only when the marketing changes. This research was consistent with Zafar et al. [32].

H₄ Knowledge management influenced Business adaptation. The results were found that in the Thai herbal industry, the influencing factor on the Thai herbal industry was knowledge management. From the study, it was found that knowledge management factors influence industry innovation and directly affected business transformation since the herbal

industry in Thailand relied on knowledge as a key factor for change. In addition, it was found that the business change of the industry was due to increased knowledge, which resulted in Thai herbs being able to be used as a treatment in place of chemical medicine. Therefore, business transformation required knowledge management to bring about change. The business change would affect the overview of the Thai industry in a better direction and increased the export of Thai herbs as well. This was consistent with the research of Muhammad et al. [25] Aris Tri Haryanto et al. [26] Zany and Elsina [27].

H₅ Marketing adaptation influenced Business adaptation. The results of the study found that market changes directly affected business changes as the herb industry in Thailand still needs to change according to market trends. This was because most companies in the SMEs industry. Most industry companies were not market leaders, so the direction of market transition must be considered as a key factor in business transformation. However, the results showed that during the COVID-19 crisis, many SMEs had made adjustments based on the situation, herbal knowledge, consumer adaptation and market adaptation. The business was then analyzed and adjusted in order to respond to current events and to meet the needs of both domestic and international consumers. The study was consistent with Zafar et al. [32] and Yan et al. [33].

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The Development of Souvenir from Yangon Woven Fabric and Local Materials for Community Product

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Abstract— This research aimed to study current souvenir market in Yangon, Myanmar and develop souvenir from Yangon woven fabric and local materials as model for community product. The main concepts in product design were aesthetic, functional, local identity, and simplicity in production process with local wisdom, art and cultural, and ways of life. In this research, the 20 product designs were classified in to 2 categories as woven fabric products (10 designs) and local material souvenirs (10 designs). The result of the evaluation in product design from experts, local residents, and tourists revealed that most of products were rank in high satisfaction level which the designs could be express the aesthetic and local identity with potential to use as model for community products. In future, this could be implemented as a special training program for university to transfer knowledge to community in order to extend the knowledge from research to the production in commercial.

Index Terms— Product design, Local woven fabric, Souvenir, Yang

I. INTRODUCTION

Myanmar or the Republic of the Union of Myanmar is located in Southeast Asia region which consists of lot of ethnic groups as Bamar, Shen, Karen, Rakhine, Mon and others while Longje is a national costume for both men and women that express the national identity. Myanmar and Thailand are closely similar in various elements such as cultural, belief, religion and language. Natural resource richness is a prominent feature, the precious stone is the famously exported product also agricultural goods, textiles, wood products, oil and natural gas. In present, Myanmar is considered as a popular tourism destination because of the aesthetic in natural resource and culture. The tourism market is a study of tourist demand focusing on tourist requirement. This is based on market research, forecasting and selection of tourism resources in demand in order to obtain the most business benefit in offering the services to the tourists according to the specified goals [1]. This is correspondent to the meaning of the world tourism organization mentioned that the managing philosophy for tourist demand through research, forecast and selection of suitable products tourism market results maximized achievement of benefits for the organization. Behavior of purchasing products has a profound effect on consumers in making decisions to buy each type of product.

The consumer behavior will depend on the level of risk, consumer's stake in the product and the degree of difference among product brands. The purchasing behavior is divided into four categories: normal shopping habits, anxiety-reducing shopping habits, complex shopping behaviors and diversity-seeking behavior [2]. The results of field survey in Scott, Myanmar market revealed that only few product designs are discovered in current market and most of products are old – fashioned without local identity which result difficulty for tourists to make purchasing decision. For this reason, souvenir is one of the key to generate additional income to nation and local community apart from other service industry. Souvenirs from woven fabrics and local materials were developed with emphasis on functionality, beauty, uniqueness and stories of local products in Champasak province as souvenir. It was found that the woven fabrics and local material products had the attention of the housewife group in Champasak province in the highest satisfaction level as prototype for further production of the community products [3].

In this study, the concept of local material, nature and Myanmar art are applied in souvenir designs to attract tourist attention which could be benefit in cost reduction and conformed to tourism need and preference. In addition, this research also acted as medium to support international relation using research collaboration between Thepsatri Rajabhat University and University of Yangon.

II. RESEARCH OBJECTIVES

1. To study the current souvenir market in Yangon, Myanmar.
2. To develop the souvenir designs as community product of Yangon, Myanmar with local identity.

III. RESEARCH METHODOLOGY

The 20 souvenir designs are developed in this study; 10 designs from local woven fabric and 10 designs from local material. The main concepts of souvenir design are aesthetics, functional with local identity. The basic production process is also considered in product design which could further applied to transfer knowledge as community product.

1. Data collection and field survey: (1) survey souvenir product in Yangon market and tourist attractions; Theingyizay market, Indian market, Bogyoke Aung San Market (Scott market), Chinatown, local native village, Shwe Bon Thar Street, FMI building, Shwethalyaung (Bago), (2) secondary data survey from related document in woven fabric product, and souvenir from local material.
2. Product Design: applied the data from primary and secondary data to outline the primary product designs as souvenir. Aesthetics, functional, local identity and distinctive are applied in product design. Woven fabric and local material are selected to develop souvenir for Yangon as model. Then, develop all 20 primary product models (10 products from local woven fabric 10 products from local material)
3. Questionnaire design: identify the satisfaction level of tourists or prospective customers in 5 aspects; product design, color, material, preference, and suitability to be souvenir.
4. Data were analyzed by using statistical analysis technique [mean, standard deviation] and interpret data.
5. All 20 product models were developed from photo sketches.
6. Data were summarized and reported.

IV. RESEARCH RESULTS

From the results of data collection and field survey revealed that most of current woven fabric product were the bolt of cloth or wearing apparel. The souvenir that made of local woven fabric were rarely found. General souvenir designs were discovered. The product packages were also unattractive.



Figure 1 Woven fabric and souvenir products at Shwethalyaung (Bago) and Karaweik Palace Restaurant



Figure 2 Woven fabric products at Bogyoke Aung San Market (Scott market)

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Figure 3 Souvenir product at Bogyoke Aung San Market (Scott market)

The 20 product designs were developed to applied aesthetics, functional, local identity and distinctive as main concepts. (figure 4 and 5)



Design No.7

Design No.8



Design No.9

Design No.10

Figure 4 The 10 designs of souvenir from local woven fabric



Design No.1

Design No.2



Design No.11

Design No.12



Design No.3

Design No.4



Design No.13

Design No.14



Design No.5

Design No.6



Design No.15

Design No.16



Design No.17

Design No.18



Design No.19

Design No.20

Figure 5 the 10 designs of souvenir from local material

The overall results of tourist or prospective customers satisfaction evaluation from 100 respondents revealed as in Table 1

Table 1 The satisfaction evaluation of tourists in souvenirs from Yangon woven fabric

Design No.	Satisfaction Level		
	\bar{x}	S.D.	Interpretation
1. Crossbody camera bag	4.28	0.46	Highest
2. L-Backpack (Lisu woven fabric)	4.24	0.52	Highest
3. My-Camera bag (Myanmar woven fabric)	4.40	0.50	Highest
4. Squire crossbody bag (with local material)	4.19	0.72	High
5. Geometry pattern handbag (with Lisu woven fabric)	4.64	0.49	Highest
6. Accessory bag (Myanmar + Lisu woven fabric)	4.60	0.50	Highest
7. Cylinder bag (Lisu woven fabric)	4.36	0.49	Highest
8. Geometry pattern accessory bag (with Lisu woven fabric + local material)	4.56	0.51	Highest
9. Vintage camera bag (with Hmong + Lisu woven fabric)	4.48	0.51	Highest
10. Geometry pattern handbag (Large size)	4.44	0.58	Highest

Table 2 The satisfaction evaluation of tourists in souvenirs from local materials

Design No.	Satisfaction Level		
	\bar{x}	S.D.	Interpretation
11. Clothes-hanger (resin decoration)	3.90	0.46	High
12. Bird key holder (resin decoration)	3.36	0.65	Medium
13. Wood strip key holder	3.03	0.68	Medium
14. Bird business card holder	4.12	0.55	Highest
15. Bird candleholder (resin decoration)	4.36	0.51	Highest
16. Elephant key holder (resin decoration)	3.58	0.44	High
17. Fish business card holder	3.84	0.55	High
18. Geometric – Elephant business card holder	3.48	0.51	High
19. Free form business card holder	3.64	0.65	High
20. Fish and Bird key chain	4.20	0.46	Highest

From results in Table 1 and 2, the satisfaction evaluation of 100 tourists revealed that most of souvenir designs were in the high level which indicates that new product designs were fit with taste and preference of prospective customer and able to extend the research outcome in commercial. For woven fabric designs, design No.5 was ranked in the first position with the highest satisfaction level. The next ranking was design No.6, 8, 9, 10, 3, 7, 1, 2, 4, respectively. For local material design No.15 was ranked in with highest satisfaction level. The next ranking is design No.20, 14, 11, 17, 19, 16, 18, 12, 15, 13, respectively

V. DISCUSSION

This research aimed to study current souvenir market in Yangon, Myanmar and develop souvenir from Yangon woven fabric and local materials as model for community product. The result indicated that the attractive product designs could encourage tourists to buy souvenirs while contemporary art, cultural, local wisdom and identity are keys of creativities to generate value added [4]. studied the model of creating value added waste material from village community products in Nihom Lam Dome Noi Subdistrict, Sirindhorn District, Ubon Ratchathani Province [5]. studied purchasing behavior of products and services among Thai tourists in the Sunday Walking Street activity, Ratchadamnoen road, Mueang District, Chiang Mai province. The tourists suggested that Chiang Mai municipality should promote the products sold in

the walking street activity and develop of diverse and modern products to increase the product attractiveness and value. Moreover, there was behavior study of tourists' souvenir selection in the case of Night Bazaar in Chiang Rai province. It was found that the most Thai tourists traveled to Chiang Rai more than 4 times for shopping souvenir products because it is a source of handicraft products and many food types, as well as a comprehensive stage performance. Most products were bought from floor store or table store on aisle with purpose of choosing products as New Year's or festival gifts, which are accessories of various tribe card, mulberry paper, cotton cloth, silver jewelry wood products and various wicker products. Product materials such as wood, paper, fabric, rope, soil, stone were popular. Moreover, beautiful design and reused package were preferred by tourists [6].

VI. CONCLUSION

In the present study, the 20 product designs were classified in to 2 categories as woven fabric products (10 designs) and local material souvenirs (10 designs). The evaluation of product designs showed that most of products were rank in high satisfaction level which the designs could be express the aesthetic and local identity with potential to use as model for community products of Yangon, Myanmar with local identity.

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Development of automatic solution mixing and temperature control systems for hydroponics crops

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Abstract— This research project is to Development of automatic solution mixing and temperature control systems for hydroponics crops. The objectives are 1) To create an automatic solution mixing control system. for growing hydroponic vegetables and 2) to create an automatic water temperature system for growing hydroponic plants The development of the system as mentioned in order to solve the problem of inadequate mixing of the solution and root rot disease caused by temperatures that are too hot in some seasons. This reduces the cost of mixing the solution. due to the efforts of farmers to mix the solution themselves. This causes two types of problems: plants are not getting enough nutrients. And the plants get too much nutrients, which causes waste. And there are residues in the water that feed the plants.

The researcher has developed an automatic temperature and solution mixing control system for growing hydroponics plants to resolve the problem most effectively and obtained the results of the experiment with a temperature of 23.5 degrees. in an environment with a temperature of 33 degrees or more including the results of another system from testing. Obtained from the development of an automatic solution control system capable of reading conductivity value. As specified by farmers in the range of 1.50 – 2.00 ms/cm. It can also read the general standard measuring instruments from 1.00 – 4.00 ms/cm and received satisfaction evaluation results from both system trials in good level They have the same average score of 4.41 and observe the issues that correspond to the objectives of the research project, namely. Solution to mix solution and fixing root rot caused by hot water in some seasons. The point is that the revised results from the system are at a very good level.

Keywords— Automatic System, Hydroponic Plants, Automatic Temperature mixing and control systems

I. INTRODUCTION

At present, there are not many farmers who turn to soilless cultivation. This is an imitation of growing plants on the soil, but the planting uses other planting materials. Be used to replace planting with soil Hydroponics is a method of growing plants in a vortex system that uses a solution to nourish the plants, therefore, the concentration of the solution is controlled. Which is related to the pH of water and is a mixture of solutions so that plants can absorb nutrients well. and can take full advantage of nutrients in all seasons and ages in the growth of plants grown by hydroponic methods. The suitability of the nutrient solution for plant feeding is generally constant of solution is between 2.0 – 4.0 mS/cm at 25 °C. and for Thailand The solution is used between 1.5 - 2.5 mS/cm at 25 °C as well. which is suitable for growing local crops within the country and control and control of nutrient mix must be different according to the growing season of plants for example, during the seedling period, the solution

value is controlled to be lower than the threshold and increase according to the growth of the plant. For example, the solution was initially set at 1.0 mS/cm and when the plants are growing until the day before harvesting. The solution value will be changed to 2.0 mS/cm. Overall, the solution values vary according to the growth stage and plant vigor.

As a result of the assignment, they went to the storage area, inquired and observed the farmer's mixing behavior of the solution. It will be difficult to control the mixing of the solution to get the value of that solution. Which found mixing the strands each time. It's just a criteria which is a non-standard value, causing the solution to be residual every time. Causing the plants to not fully absorb. Also, water temperature affects root rot in summer crops found in hydroponics. Which is difficult to control Therefore, the researcher saw the microcontroller technology. and sensors to help control. To make farmers reduce costs in the process of mixing the solution to the specified value. As well as reducing the water temperature in the planting system to prevent rot disease most effectively.

II. RESEARCH OBJECTIVES

Develop a solution mixing control system and automatic temperature for growing hydroponics plants

III. LITERATURE REVIEW

Hydroponic cultivation of plants is to grow plants in water that contain nutrients for plants that dissolve in water. Or planting plants in nutrient solution to replace general agricultural crops using soil. This requires control of the solution concentration (EC) and solution temperature. To enable plants to take full advantage of nutrients in every season, and all ages of plant growth. For the concentration of the solution and the temperature, the following are important. The concentration of solution suitable for growing plants Plant solutions or nutrients generally maintain EC values between 2.0 – 4.0 mS/cm at 25°C. For Thailand, the EC value is between 1.5 - 2.5 mS/cm, which is suitable for growing local crops within the country. And the nutrient solution control must be different according to the growth period of the plant. For example, while still a seedling, the EC value is controlled to be lower than the threshold and then increases according to the growth of the plant. combined with the information of Carruthars (1998) and Jones (1997) have suggested covering EC, pH and nutrient concentrations (ppm) for major crops as shown in the table 1.

Table 1: Conductivity (EC) and nutrient concentration (ppm) for crops

No	Plant	Conductivity (EC) (mS/cm)	nutrient concentration (ppm)
1	Cauliflower	2.5-3.0	1,750-2,100
2	Celery	2.5-3.0	1,750-2,100
3	Broccoli	1.8-2.4	1,260-1,680
4	Kale	1.5-3.5	1,050-2,400
5	lettuce	0.8-1.2	560-840
6	Wrapped Lettuce	0.9-1.6	630-1,400
7	turnip	1.8-5.0	1,260-3,540
8	Chinese cabbage	1.5-2.0	1,050-1,400
9	spinach	1.4-1.8	980-1,260
10	water vegetable	0.4-1.8	280-1,260

Source: Carruthars (1998) and Jones (1997)

[10] Tasnuphan Kuonsathit, (2012) Planting without soil. It is therefore a new alternative approach in the future. To reduce the use of pesticides, Increase the efficiency of

fertilizer use and water system, save labor. This allows farmers to grow vegetables without using non-toxic soil for consumption.

Naricha Phoprasa (2005) studied and planned hydroponics vegetable cultivation, which is an alternative that can control various factors to be able to plant continuously. By directly administering the solution to the roots of the planting table structure. It should be made of steel for durability. And the alarm chute should be PVC pipe due to its light weight. Easy to install and move, care must be taken at every distance, which divides the alarm into 3 The term is because the seedlings are planted on the planting table and harvesting crops in solution. Must study to check the electrical conductivity, pH - alkalinity to an appropriate level, check the amount of solution in the planting tray. Research findings, grants and compensation On average, earnings above all costs are positive. But the investment should be studied in terms of market demand, consumer trends, standards and quality of vegetables as well as consumer behavior

IV. RESEARCH METHODS

- 1) Collect data by means of searching, asking, and observing to analyze and draw conclusions.
- 2) Conduct research and study methods for measuring conductivity, temperature, and mixing methods. How to lower the water temperature from normal temperature with microcontroller?
- 3) The design of the system to be developed has the concept as shown in Figure 1, which can be divided into 2 parts:

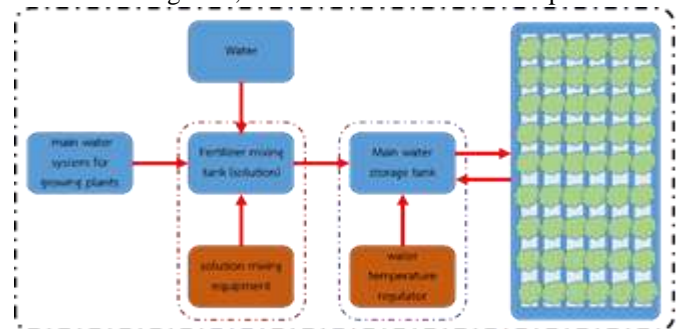


Figure 1: The overall concept of the system

- 1) Develop a water temperature control unit with a microcontroller system.

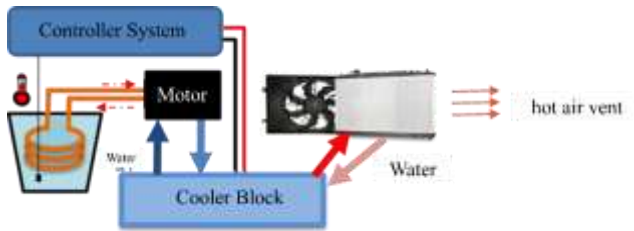


Figure 2: water temperature control concept



Figure 3: Water temperature control device with microcontroller

From the development of water temperature control device with microcontroller, the temperature can be compared to room temperature as shown in Table 2

Table 2: Water temperature control equipment experiment table

Hour	water temperature	room temperature
1	29.5	33.2
2	28.3	33.9
3	27.6	34.6
5	25.2	35.5
7	24.1	36.2
8	23.7	36.7
9	23.6	37.2
11	23.5	37.4
12	23.5	37.5

2) Develop a system to help mix fertilizers or solutions for growing hydroponics plants with a microcontroller system.

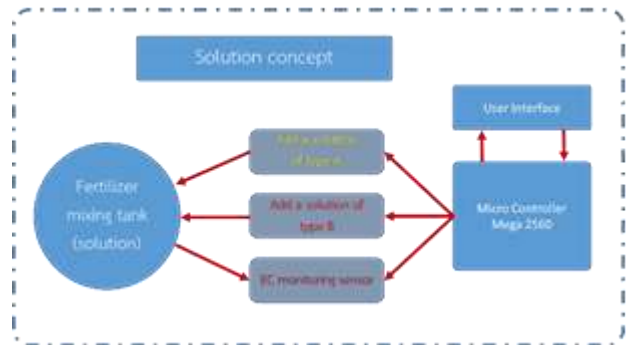


Figure 4: Automatic solution concept



Figure 5: Automatic solution model concept



Figure 6: Automatic solution mixing equipment

Result of the development of automatic solution mixing equipment. The equipment is able to properly mix the solution according to the values specified by the farmer to use in growing that kind of crop

4) Tested in a real system



Figure 7: Compatible with the real system of the University Center

5) Evaluate the satisfaction of both parts of the system. The satisfaction of both parts of the system was assessed as shown in Table 3 and Table 4.

Table 3: Assessment results of satisfaction with water temperature control equipment

No	Detail	X	S.D.	Meaning
1	Material and design	4.54	0.58	Very Good
2	Functionality	4.18	0.83	Good
3	The workflow is not complicated.	4.32	0.65	Good
4	usage	4.34	0.66	Good
5	The results obtained from the system	4.64	0.53	Very Good
6	is consistent with the use	4.68	0.47	Very Good
7	safety	4.18	0.69	Good
Total average		4.41	0.63	Good

Satisfaction assessment results from 50 respondents interested in the system. The results assessed the satisfaction of the water temperature control set to the level set by the farmers with an overall average of 4.41, at a good level. Which

consisted of satisfaction with the evaluation results at a very good level in 3 topics: 1) Material and design has an average of 4.54, 2) the results obtained from the system has a mean of 4.64 and 3) It corresponds to the intended use with an average of 4.68.

Table 4: Assessment of satisfaction with the hydroponic vegetable growing solution mixer

No	Detail	X	S.D.	Meaning
1	material and design	4.38	0.64	Good
2	The workflow is not complicated.	4.26	0.63	Good
3	precision	4.58	0.50	Very Good
4	use	4.36	0.63	Good
5	results obtained from the system	4.66	0.48	Very Good
6	consistent with the use	4.44	0.58	Good
7	safety	4.2	0.67	Good
Total average		4.41	0.59	Good

Satisfaction assessment results from 50 respondents interested in the system Which has an evaluation of the satisfaction with the solution mix for growing hydroponic crops at the level specified by the farmers with an overall average of 4.41, at a good level which consisted of satisfaction with the evaluation results at a very good level in 2 topics: precision equipment has a mean of 4.58 and results obtained from the system has an average of 4.66

V. RESEARCH RESULTS

conducting research Development of automatic solution mixing and temperature control systems for hydroponics crops. Data were found from 50 respondents. Which are interested in both systems. The satisfaction assessment results for the solution mixing control system were at a high level. which has an overall mean of 4.41 and automatic water temperature control system at a high level which has an overall mean of 4.41 as well. Causing the researcher to consider the topic in the same detail and having the same average score from the assessment is very good. The result was corrected from the system. Which corresponds to the objective of the project is both systems were developed to address the mismatch of solution mixing. and fix root rot problems of plants due to water temperature that is too hot in some seasons. Therefore, the system can solve problems with maximum efficiency.

VI. DISCUSSIONS

Implementation of a research project to develop an automatic water temperature control system and the development of an automatic solution mixing control system for growing hydroponic vegetables, where the two systems are interrelated. And the system has needs that can be relied on. In particular, the automatic solution control system requires the water temperature to be analyzed in the solution mix. As well as the water temperature control system that affects the growth and prevent root rot disease of vegetables, which is an amendment according to the objectives of the project. In order to solve problems for farmers who grow vegetables hydroponics. and make vegetables grown by hydroponic methods grow well

VII. CONCLUSION

Results from research and development of automatic solution mixing and temperature control systems for hydroponics crops. The system can work at full efficiency for its intended purpose. to solve the problem of mixing the solution and solve problems with various diseases of vegetables grown with hydroponic systems. With the relationship of the control system, the plant grows with maximum efficiency. As well as the development of both solution mixing and automatic temperature control systems. But the two automatic mixing and temperature control systems are still prototypes. that is not yet suitable for industrial use or large hydroponic crops Because the material produced is still just an experiment.

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Corporate Image Perception via Social Media Communication with Entrepreneurial and Non-Entrepreneurial Customer as Moderator: The Evident of Thai Commercial Bank

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Abstract— This research aimed to study 1). the selection of online banking services 2). the effect of brand communication on the choice of online banking services 3). brand awareness that affects the selection of online banking services of entrepreneurial and Non-Entrepreneurial Customer of Thai commercial banks in Bangkok. The sample population consisted of 400 entrepreneurial and Non-Entrepreneurial Customer of Thai Commercial Bank who used online banking services in Bangkok.

Using the stratified random sampling method, the researcher selected members of the sample population. On the basis of standard research methodologies, the researcher proportionally allocated members of differing categories in the sample population. The research instrument was a questionnaire used to collect germane empirical data. Using quantitative methods, the data collected were analyzed using the confirmatory factor analysis (CFA) technique and structural equation modeling (SEM). In addition, using techniques of descriptive statistics, the researcher analyzed the data collected in terms of mean and standard deviation. Furthermore, in relying on a quantitative research approach, the researcher carried out content analysis through alternatively applying variance and covariance statistical modes of analysis.

The results of SEM analysis showed that the hypothesized model constructed by the researcher evinced congruence with the empirical data collected by means of the questionnaire. This was shown by the result that both the goodness of fit index (GFI) and the adjusted goodness of fit index (AFGI) were shown to hold at a good level. Thus, it can be said that the hypothesized model satisfied the quality standard, since congruence between empirical data and the hypothesized model was at the statistically significant level of 0.01

Index Terms— Brand, Brand Awareness, Communication, Social Media, Corporate Image

I. INTRODUCTION

Adaptation of Thai commercial bank both entrepreneurs and non-entrepreneurs or general customers in Thailand are not only an adjustment to support Thai economy. In addition, it is an attempt to adapt and develop to accommodate for the changing market environment between in the country and abroad. For the survival of the bank and to build the confidence for customers and the general public which is the main institutions to help create permanent prosperity for the Thai economy

A strong brand is the goal of every organization. In marketing, brand can create more recognition than the product that is the product is only a part of the brand. Therefore, many organizations have turned to more focus on brand building to win the hearts of consumers and help differentiate from competitors, brand growing up through brand expansion and

connection in all dimensions to reach consumers with stakeholders and organization. [1]

In the disruptive technology era where communication technology connects the world together, communication and online transactions with commercial banks play an increasingly important role in our daily lives. The rapid change of economic, social, political and environment push customers of commercial banks are increasingly interested in using the online service because they can manage all transactions at the company or anywhere that is convenient. [2]

Preparation for each bank in the country that foreign banks will invest more in order to expand the market share of the financial business is to accelerate. The search for weaknesses that hinder the development of banking business. The chances that customers will change their mind to use the services of other banks. Before going to improve to close those opportunities which adjusting to protect the weaknesses will be able to compete with foreign competitors who will enter.

The components of communication [3] consist of: (1) sender (2) message (3) media in communication channel (4) receivers (5) understanding and response

According to [4] six important of communication are as follows:

- (1) Communication allows us to be aware of the feelings and needs of others.
- (2) Communication creates a good relationship with each other because communication is part of building relationships with other people, from building relationships in families and individuals in society.
- (3) Communication causes relaxation, aesthetics, emotional relaxation, mental enjoyment and happiness in life.
- (4) Communication helps to create a person's identity to understand oneself and others, know how to express behavior in various fields, as well as to know the role of oneself and others.
- (5) Communication leads to learning, knowledge exchange, affects the development of intelligence, aptitude, interests, skills in life and have a more worldview.
- (6) Communication helps motivate hope, motivation and goal building in life.

Communication is one of the important tools that executives should use along with other management to change the organization. Many researches from countries confirmed that communication can help to drive organizational change. Today's highly competitive environment that can lead the organization to survive and progress

Social media:

Now a days we are able to do everything online; like banking, shopping, communicating. Every business whether it is a small one or a large corporation needs the assistance of social media. Social media marketing plays a great role in increasing the website traffic and generating more leads which further help in the conversion of prospects into customers. In addition, social media also helps in raising awareness about any particular brand or business as it is a platform where people can promote their business in a better way, with social media, businesses get a chance to be a part of an active communication that happens between them and their target audience. In the same, online banking has big role refers to several types of services through which bank customers can request information and carry out most retail banking services such as balance reporting, inter-account transfers, bill-payment, etc., via a telecommunication network without leaving their homes or organizations [5]

Brand Content communication:

Content generated through social media is becoming increasingly important and can have a crucial impact on consumer destination brand awareness [6] [7] [8] [9]. Consumers can be affected by social media content, particularly while comparing destination brands and making their final travel purchasing decisions [10]. In addition to providing information to consumers, social media content can also introduce consumers to each other, satisfying their expectations for social status and prestige.

social media provide opportunities for internet users to create and share content [11]. The content created by internet users involves different topics, including brands and products, making companies no longer the primary source of brand communication. Consumers consider social media as more trustworthy sources of information than the traditional instruments of marketing communications used by companies [12]. Thus, marketing and brand managers may assume that brand communication will increase through user-generated social media communication [13]. Branded companies provide branded output in their websites and social media, most often the reader is annoyed by reading lengthy content, repetitive message, logical fallacies which results in ambiguity for normal audience. Content writing skill should persuade the reader like a boy writing a love letter to his girlfriend. Below are some of the rules and pitfalls where companies generally have to concentrate in content marketing:[14]

1. Keep it short and Simple; The customer should get the feel of visiting the market place by reading the content. Example: A website for a fashion retailer should be able to showcase the physical shop with FAQs asked by the customer to the shop keeper. It shouldn't be too elaborative and should be short and simple which can be understood even by layman. They should act as pointers and memory aids for the customer to trigger interest and to involve in a purchase behavior.

2. Use Media Optimally; The marketers should not bombard the customer with overloaded information in their website. Too much of videos, flashy contents, lengthy information are called clutters which annoy the customer to stay further on the page. Too much of images and videos increases the loading time of the webpage. Companies spend in investing a lengthy one-page ad in news print media with too much of information reduces the interest to know further about the brand.

3. Our ROIs should be measurable; Companies end up burning their fingers with unplanned marketing budgets and invest in various medium for marketing their Products and services. The return on these investments should be measurable and justified.

4. There shouldn't be any repetition; The contents should be concise to the point and there should be no repetition of the same message. Few content writers prefer repetition of messages to re-emphasize the message which reduces the audience interest and image of the brand.

5. Should not have logical fallacies; The contents in print ads shouldn't have logical disconnects in delivering the message to audience. The marketer should follow IMC (Integrated marketing communication); the message passed through all forms of communication should be uniform, synchronous and complementing to each other.

6. There should be no ambiguity; The content should convey the message clearly 'As it is and as it should be' and it shouldn't convey more than one meaning to the reader. Ambiguity will dilute the brand's positioning in consumer's mind leading to decline in equity of the brand.

7. Should facilitate memorization; The content should be simple and strong that reiterates the brand's message to the target audience. The companies promote their brands through social media reiterate the same message which is delivered through their ad campaigns in order to facilitate memorization of the brand's slogan.

On social media banking, the information that providing must be useful and relatable to the target audience, moreover using Infographics, videos, and images are also recommended. Video contents are very powerful on Social Platforms. Live videos are considered top-notch in ensuring best-suited results for businesses.

Brand Entertainment communication:

Entertainment is a crucial component that encourages participate behavior and the continuity of follow up, which creates positive emotions or feeling about the brand in the minds of follows on social media. [15]. The customization as a component is the act of creating a customer satisfaction based on the contact of the business with individual users. In addition, promotions are activities that get customer in front of the public, with some intended to enhance and announce customer's name, and others intended to get consumers to act in specific ways. Examples include sales, rebates, in-store displays, contests, sponsorships, coupons, cause marketing and social media. Depending on customer needs, customers can create their own promotions or work with others as a sponsor or using cross-promotions. A customer service program should include promotions that reward and entice for customers, rather than just respond to questions and complaints [16]. Moreover, entertainment brand or event marketing is a marketing strategy that works both in terms of building brand awareness and generating sales, if a campaign is organized simultaneously. Therefore, it is the use of marketing budget that is more effective than public relations

or advertising. In summary, organizing special activities must consider the following principles:

1. Selected activities must have characteristics consistent with the personality of the brand.
2. Name of the organized event must include the name of the brand.
3. Marks and symbols of activities, brand logo must be included.
4. There must be a sign or logo of the brand in the event area thoroughly.
5. There should be a symbol of the event or Mascot to create eye-catching, bustling, interesting.
6. More media should be invited to attend the event.
7. Must have advertisement Adequate public relations both before and after the event.
8. Should invite famous people or people most people know to join the event, such as famous celebrities, singers, athletes.
9. It should be used in conjunction with other marketing communication tools.

Another reason event marketing is rapidly gaining popularity is due to the growing differences between today's customers and consumers in tastes, activities, and media exposure. This makes each group of customers have different needs or behaviors that are more different. Therefore, events or activities take over here instead. to penetrate a specific group of customers truly meet the needs Although the customer group is smaller, but the real customer can be reached. It would increase the chances of selling better [17].

Brand Function communication:

online services security is most important factor for banking. Applications designed specifically for smartphones or tablets make possible new ways to manage one's finances, and allow banks to offer a wider range of services [18]. Furthermore, the user-friendliness of the offered services when user uses the mobile application, the user needs to enter the password that time size of mobile keypad is small, so it may get difficult to use for some user so we can establish numeric keyboard or to use pattern authentication. System can provide different method for authentication. Customer can use pin code, QR code, password, security code, in many applications and give them a more security [19].

Brand aware ness:

According to [20] brand awareness is the ability of a potential buyer to recognize or recall that a brand is a member of a certain product category. Brand awareness is a reflection of a brand's concrete indicators such as name, sign, symbol, and slogan, while the brand image is brand's position in the consumer's mind beyond these signs. Brand awareness increases not only a destination's potential of being preferred

more often compared with other unknown destinations but also the potential of being chosen among all rival destination brands [21]. Moreover, brand awareness consists of four levels: brand recognition, brand recall, top of the mind brand and dominant brand.

Usually, brand awareness indicates the ability of customers to recall the brand without any signal. Thus, brand awareness is a vital component for developing the image of a brand [1]. Additionally, brand awareness plays an essential role in building a brand in the customers' mind for the reason that customers make purchasing decisions based on knowledge, awareness, or experience of a specific brand. As a result, customers may purchase repeatedly as they are assured of its quality. Thus, brand awareness is related to brand loyalty in making decisions as it relates to customers' thoughts. Also, the degree of brand loyalty becomes stronger and firmer when customers are more aware of brand. Therefore, this study aims to highlight the role of brand awareness in the context of the customers' decision-making process as an important tool for selection amongst customers without enormous previous experience. From this point, marketers can create brand awareness among customers through repetitive publicity and advertising to build a brand loyalty in the long-term [22] [23] [24].

Brand image:

The image of the organization in the era of communication technology that connects the world, economically, socially, politically and environmentally, is an important issue that leads to the development of the corporate brand because it can lead to the long-term sustainability of the company [25]. Brand image is an important concept in marketing. Although the image evaluation is difficult. The brand image is Brand awareness that reflected the brand association in the consumer's memory. Moreover, brand image contains information and ideas that a consumer has about the different products of the brand and the features of the product [26]. Brand image is eventually the mirror through which the company's key value are reflected. Every brand tries to create an image that will take its company and products forward and for this, they spend lots of money and implement many creative ideas. Image of a brand is ultimately a deciding factor that determines the products sales. The brand image is very important, as it is an accumulation of beliefs and views about that particular brand. The character and value of the brand is portrayed by its image, as it is the main component in the scheme of things. Moreover, A positive brand image can make the decision process easier, thereby promoting a lot of repeat purchases as well as primary purchases. A promising brand image conveys the success of the product and gives results with increased sales and revenues. A positive image

gives confidence to the customers as they feel that the brand is sincere and clear in its vision to create the best. So, it is possible to build brand image with strong advertisements because of which companies are promoting their products through various famous personalities to enhance their image of brand. [27]

From information, it can be concluded that brand image is an essential business component, direct importance to the bank. Management in an organization must focus on public relations or present information to consumers by relying on many business elements such as bank credibility quality of service to create motivation in the group consumers as much as possible.

II. RESEARCH OBJECTIVES

The objectives of this research article were 1). the selection of online banking services 2). the effect of brand communication on the choice of online banking services 3). brand awareness that affects the selection of online banking services of entrepreneurial and Non-Entrepreneurial Customer of Thai commercial banks in Bangkok.

III. RESEARCH METHODS

A. Research Design

The population of this research is consisted of online entrepreneurial and non-entrepreneurial customer of Thai commercial banks in Bangkok for 400 samples Using two-stage sampling in this study. The first selected five areas from fifty areas in Bangkok: 1. Central Bangkok Group is Huay khwang District 2. Southern Bangkok Group is Yan nawa District 3. North Bangkok Group is Chatuchak District 4. Eastern Bangkok Group is Kanayao District and 5. Western Bangkok is Bangplad District. The second: using Quota Sampling of forty entrepreneurial and forty non-entrepreneurial from each area. Figure 1 has shown the 5th research's area from fifty areas in Bangkok by quota sampling for testing hypotheses. Quantitative method has been applied to test correlation between the variables in the study and to achieve the determined objectives.

District: Area	Entrepreneurial	Non-Entrepreneurial	Total
1. Huaykhwang	40	40	80
2. Yannawa	40	40	80
3. Chatuchak	40	40	80
4. Kannayao	40	40	80
5. Bangplad	40	40	80
Total	200	200	400

Fig.1 Research area for corporate image perception via social media communication with entrepreneurial and non-entrepreneurial customer.

B. Research Process

Research process of this study the researcher reviewed the literature and related research to create a conceptual framework that guides the development of questionnaires to collect data from the sample population. Creating a measure of the instrument that is the main variables for collecting data were the general respondent data gauge and the variable gauge list. 1. Brand communication in the form of content (Brand Content--BC) 2. Brand communication in terms of use (Brand Function--BF) 3. Brand communication in the form of activities (Brand Entertainment--BE) 4. Brand Awareness--BA 5. Brand Image--BI.

The variable gauge is a question that is a 5-level Likert Scale rating scale, which allows only one answer that matches the level of acceptance was greatest using interval scale questions. [28] (Likert, Brown, 2011, pp. 10-14)

Acceptance level the score weight of the answer option: Minimum is set to be equal to 1 point. Low is set to be equal to 2 points. Medium is assigned a value of 3 points. A lot is set to be equal to 4 points. The maximum is set to be equal to 5 points.

Data collection, the researcher conducted data collection with the following steps:

1. Perform a tool test to check for content validity. and find confidence before delivering the complete questionnaire to the sample. and delivery through various channels to reach the specified number of samples
2. Dispatch the questionnaire and e-questionnaire through various channels in order to reach the specified number of samples, for example, via electronic mail, ask by yourself. Submit a questionnaire and ask to reply within 2 weeks.
3. Collect data check information Save and process by using a ready-made computer program.
4. Use the data obtained from the processing to analyze, synthesize and summarize the results of the data.

IV. RESULTS

Demographic Characteristics

In the research, demographic characteristics of the respondents have been firstly examined. 400 of the participants are female 266 and 134 are male. 54.80 percentage of participants is in the age range of 26-40 years and 19.50 percentage is 41-55 years of age and 16.80 percentage is 56-60 years of age. The level of education 57.50 percentage is bachelor degree and 42.00 percentage is master degree and 0.50 percentage is higher than master degree. The maximum period time that participants contact business with the commercial bank 64.30 percentage is the period of 6-10 years and 35.80 percentage is in the period of 1-5 years.

Analysis of the structural equation model for corporate image perception via social media communication with entrepreneurial and non-entrepreneurial customer

Hypothesis	Coefficient	t-statistic	Result
H1. Content communication positively affect brand awareness	0.362	7.786***	Supported
H2. Entertainment communication positively affect brand awareness	0.298	5.684***	Supported
H3. Function communication positively affect brand awareness	0.361	6.518***	Supported
H4. Brand awareness positively affect brand image	0.278	4.715***	Supported

Note: The significant level: *** meaning $p < 0.001$, ** meaning $p < 0.01$, * meaning $p < 0.05$

Fig.2 Research Analysis of the structural equation model for corporate image perception via social media communication with entrepreneurial and non-entrepreneurial customer.

From figure 2, the results of the analysis of structural equations with Smart PLS technique, the results of the research of the structural equation model in the path image from the above table, it is found that the hypothesis testing results can be summarized as follows: (1). Content communication factor positively affect brand awareness with a coefficient of 0.362 and t-statistics of 7.786 was statistically significant. (2). Entertainment communication factor positively affect brand awareness with a coefficient of 0.298 and t-statistics of 5.684 was statistically significant. (3). Function communication factor positively affect brand awareness with a coefficient of 0.361 and t-statistics of 6.518 was statistically significant. (4). Brand awareness factor positively affect brand image with a coefficient of 0.2780 and t-statistics of 4.715 was statistically significant.

V. DISCUSSIONS

1. Content communication factor positively affect brand awareness with a coefficient of 0.362 that means the online entrepreneur and non-entrepreneur consumer is more complex from the past, before deciding to select a product or service will need to find information, compare products, find reviews both from the website and social

media. It's no longer a purchase decision just because of seeing an advertising. It is important to focus on creating content in banking, including create credibility in the online world on the path that the target customer travels because in the online world banks cannot have salespeople provide product or service information to customers. Most of content relies on writing information on the website or use customer reviews in marketing communications. The format of content marketing has been developed to be more in line with consumer behavior. Technology and creativity are blended to create brand value through unique and unique content. Creative "Difference" has become an important issue in content making because creating an identity for the brand and can help increase the recognition in the minds of consumers, putting quality content with creativity has become a marketing team to reach more consumers by modifying the presentation of knowledge, entertainment, using storytelling through beautiful graphics like Infographic, Video clip, Podcast. Beautiful images and content that is full of benefits that customers will receive is very important for banking. This is consistent with research by [6] [7] that found Content generated through social media is becoming increasingly important and can have a crucial impact on consumer destination brand awareness.

2. Entertainment communication factor positively affect brand awareness with a coefficient of 0.298 that means Branding through activities such as corporate social responsibility projects, documentaries, talk show, and current event show on marketing various channels are an issue that organizations use to communicate more, because it helps to increase the immunity of the brand, both in terms of image and corporate reputation as well as brand reputation. Customer response can also access by the customer's feelings about the brand, for example, it is a brand that is warm, fun, exciting, safe, socially acceptable and self-respecting, etc. The process of consumer response aims to provide create a positive reaction to the brand and will lead to the final step is to build a good relationship between the brand and the customer. Which is a reflection of brand building from the first step until the lead to loyalty customer insights, it motivates customer continuous repeat purchase and telling behavior. It can be seen that large corporations will create corporate branding through social activities which is one of the tools that can bring to strengthen in the corporate brand. Event that the organization will bring the issue of social activities came to communicate in the form of advertising films to create corporate image and motivate customer to participate in social activities by the organization. It is one way to make the brand stable and sustainable and can create engagement with the target customer through activities by the

organization, all activities start from good intentions of the organization. Optimizing event marketing is not only appropriate with the tastes or needs of the customer target but it must also be an outstanding activity and interesting for the effect of public relations. Entertainment event marketing management also requires step-by-step planning. This is consistent with research by [15] that found entertainment is a crucial component that encourages participate behavior and the continuity of follow up, which creates positive emotions or feeling about the brand in the minds of follows on social media.

3. Function communication factor positively affect brand awareness with a coefficient of 0.361 that means the trend of transactions through online banking continues to increase from the behavior of consumers who began to look for convenience from technology closer, the more commercial bank has to adjust and compete to develop more quality services and security services. Another part is the government's national e-payment push, another important factor that will support the growth of digital banking transactions in the future. New features that respond to customer lifestyles and user friendly allow customers to modify the usage according to their needs. Focusing on the customer needs in terms of functional benefits, creating colorful emotional benefits such as the design on the e-slip during important festivals; Chinese New Year, Valentine's Day, Songkran day patterns to increase the novelty and be closer to customers. But the most important thing is to have advanced data security measures, bank itself is to considered process system, timing and cost that has been changing for user-friendly too. This is consistent with research [18] that found Applications designed specifically for smartphones or tablets make possible new ways to manage one's finances, and allow banks to offer a wider range of services.

4. Brand awareness factor positively affect brand image with a coefficient of 0.2780 that means consumers have expectations and higher demand for services in the rapidly changing of globalization, they have less patience and time but need convenience in receiving services to impressing. Creating corporate image is the basis of every large business organization, in particular, the bank is a financial institution that can be established by relying on the trust and faith of the public as well, customer's mind service users and the general public. If commercial bank can create the best image in the hearts of customers and the public, it is the based of the organization firmly. When there is any problem or crisis, it will not be risks but can be resolved quickly. Creating the image of commercial bank is to create trust and safety to customer on online too. So, all commercial banks are determined to create a good image with stability. It is

consistent with research [26] that found brand image contains information and ideas that a consumer has about the different products of the brand and the features of the product.

VI. RECOMMENDATIONS

A. Recommendations for Practices

1. Careers, size of business and activities of entrepreneur and non-entrepreneur customer have influenced for online banking, design channel to manage in personalized and improve the direct marketing.
2. Brand awareness and banking system should be design for customer's satisfaction.
3. Brand image; especially transparency, security, good governance, appropriate laws are also very important for supporting online banking services industry.

B. Recommendations for Further Research

1. The samples tested in this study were the commercial bank in some district in Bangkok metropolitan, in next research if expand the sample tested in other area it will create new knowledge to further research.
2. This research was designed and completed by using short experimental. So, this should be set to repeat the experiment with a group of customers.
3. This research conducted specifically on online communication with brand awareness, and brand image. Therefore, it should conduct research on various types of marketing such as customer experience management in personalized, product group can be focus on that will engage entrepreneurs and customer with sustainable market development.
4. Result of this research was developed by mainly quantitative research and grounded theory is emerged as a relationship model between variables. Therefore, it should conduct further research by analyzing structural equation model by extending the sample size of sample group, and to validate the developed model using LISREL program.

VII. CONCLUSION

The findings from the analysis showed that today the selection of online banking services via social media has become an important of daily life via various channel and reflect consumer behavior. The effect of brand communication on the choice of online banking services for example: content, process, time, cost, function, comment channel and advising from bank's officer have developed strong image for bank industry. Brand awareness, both positive experiences and negative experiences that affects the selection of online

banking services are advantage for bank to improve every channel to support customer need and technology in future.

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School Administration factors affecting the daily life new normal guidelines in the crisis of COVID-19 of teachers in the secondary education office service area 17, Chanthaburi Province, Thailand

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Abstract— The purposes of research were to study: 1) the level of the school administration factors. 2) the level of the daily life new normal guidelines of teachers 3) The relationship between school administration factors with the daily life new normal guidelines of teachers and 4) The school administration factors affecting the daily life new normal guidelines of teachers. The sample was 285 teachers in the Secondary Education Office Service Area 17 Chanthaburi Province, Thailand. The sample size determined using Krejcie and Morgan table and using a multi-stage random sampling. The data collection tools were questionnaires, 5 levels of Likert scale. The data analyzed by using frequency, percentage, mean, standard deviation, Pearson's product moment correlation coefficient and stepwise multiple regression analysis. The research results revealed that: 1) The level of the school administration factor, overall was high level. Each aspect sorted in order were: atmosphere and organizational culture, organization structure, personnel development, management, leadership, and technology and communication. 2) The level of the daily life new normal guidelines of teachers, overall was high level. Each aspect sorted in order were: health care of yourself and people around, social spacing and using of media, technology and the Internet, and balancing life. 3) The relationship between school administration factors with the daily life new normal guidelines of teachers had a positive relationship at a high level, at the .01 level of statistical significance. 4) The 6 factors of school administration were jointly predicted the daily life new normal guidelines of teachers found that sorted in order were: personnel development, leadership, management, organization structure, atmosphere and organizational culture, and technology and communication. With multiple correlation coefficients (R) = .879 By the efficiency in forecasting (R^2) = .772 Accounted for 77.20 percent. It was statistically significant at the .01 levels.

Index Terms— School Administration Factors, Daily Life New Normal guidelines, Secondary Education Office Service Area 17

I. INTRODUCTION

Educational management is an essential element in the development of a country. Whether it is economic, social, political, and cultural development, affecting people in the nation with quality and potential to be an important force in the development of the country, it requires effective educational management process, as well as the role of education administrators which is also important to the success of the administration of educational agency and school [1]. The factors of school management are key

indicators of the elements of successful school management which are different in administrative factors according to the context of each school. A wise manager must adjust the management by considering the circumstances, reasons, budget, people, and community as the main issues [2].

Currently, Thai society has been dealing with a pandemic of COVID-19 since the beginning of 2020, which is still a problem and affects both politics, economy, society, and education, causing the way of life of Thai people to change, especially in the field of education. Additionally, the role of information technology in the educational management is increased rapidly. Therefore, administrators and teachers must have a clear and systematic plan

to drive the use of technology in administration or in education management clearly and systematically such as online teaching management, working from home, student homework management, online meetings, communication through media, line, and more various applications. It must also consider the discipline of learners, teacher's expertise that may cause problems in online teaching and need to be improved, such as teaching styles, teacher tools, student tools, follow-up, and evaluation, etc., All of this will be an important mechanism to support educational administration [3]. Therefore, everyone in the school must adapt to the new normal life, whether they are wearing a mask, social distancing, or body temperature screening before entering various places including the school, which is a gathering place for teachers, many students, and academic staff. In the after of the Covid-19 outbreak, educational institution administration must be altered to accommodate a new normal. The school administrators, as the school's supreme leader, are critical to the effective management of the schools.

Chanthaburi has 23 schools under the Office of Secondary Education Service Area 17, with the mission in providing education to strengthen the security of the nation's main institutions and the democratic system of government led by the King [4]. Teaching and learning management, particularly, in the era of the Covid-19 epidemic, are changing, including the change in daily life to the new normal. School administrators must use the operational process to achieve the organization's goals with efficiency and effectiveness. Administrative factors are among those that enable successful organizational operations that require planning, management, leadership, and control [5]. Furthermore, leadership, an appropriate organizational structure, an organizational culture that follows the same approach, promoting the use of information technology, and being able to communicate in the same direction [6] are required, so that teachers can use their daily life in a new normal (New Normal) happily.

The researcher is therefore interested in studying the administrative factors affecting the new normal daily life principles of teachers under the Office of Secondary Education Service Area 17, Chanthaburi Province, in order to serve as a guideline for the school administration and teachers, as well as, to assist the education system in developing more efficiently and sustainably.

II. RESEARCH OBJECTIVES

The objectives of this research article were 1) To study levels of administrative factors of schools under the Office of Secondary Education Service Area 17, Chanthaburi Province. 2) To study levels of guidelines for the new normal daily life of teachers under the Office of Secondary Education Service Area 17, Chanthaburi Province. 3) To study the relationship

between administrative factors of schools and guidelines of teachers' new normal daily life under the Office of Secondary Education Service Area 17, Chanthaburi Province. 4) To study administrative factors of schools affecting guidelines of teachers' new normal daily life under the Office of Secondary Education Service Area 17, Chanthaburi Province.

III. RESEARCH METHODS

This research is a quantitative research with the following steps:

Population and sample

1. The population of the research is 1,170 teachers from 23 schools under the Office of Secondary Education Service Area 17, Chanthaburi Province.

2. The samples obtained by using multi-stage sampling are 285 teachers under the Office of Secondary Education Service Area 17, Chanthaburi Province, Academic Year 2020. Krejcie's and Morgan's tables are used to calculate the sample size [7].

Research Variables

1. The independent variables are school administration factors which consisted of 6 factors: 1) organizational structure factors; 2) management factors; 3) personnel development factors; 4) leadership factors; 5) atmospheric and organizational culture factors; and 6) technology and communication factors.

2. The dependent variables consisted of 4 new normal daily life guidelines are as follows: 1) the use of media, technology, and the Internet; 2) social distancing; 3) caring for the health of one's own and others' health; and 4) creation of balance of life.

Data collection tools

An opinion questionnaire about school administration factors and the new normal daily life guidelines, separated into three parts, is utilized to collect data for the study.

Part 1 is a questionnaire with general information in the form of a check list on the respondent's gender, age, and educational background.

Part 2 is an opinion questionnaire on factors of school administration. It is a standard questionnaire with a Likert rating scale divided into 5 opinion levels [8].

Part 3 is an opinion questionnaire about the new normal daily life guidelines during the COVID-19 pandemic crisis. The question format is a rating scale according to the Likert method [8].

Designing a tool

The researcher created an opinion questionnaire of teachers under the Office of Secondary Education Service Area 17, Chanthaburi Province, using the following steps: 1) Study textbooks, concepts, theories, academic articles, and related

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research to determine the definitions of terms; 2) Determine the conceptual framework for constructing the questionnaire; 3) Create a questionnaire based on the independent variables and dependent variables covering the term definition. Cronbach's method [9] obtained a confidence level of .92 for tool reliability and .89 for content validity.

For completed data collection, the researcher distributed 285 questionnaires to schools under the Office of Secondary Education Service Area 17, Chanthaburi Province, and was able to collect 100% of the data.

Statistics and data analysis were employed.

The researcher analyzed the data with a statistical method and using a ready-made computer program, as shown below:

1. Analyzed the respondents' status data by calculating the frequency, percentage.

2. Analyzed the opinion questionnaires about levels of school administration factors, and levels of the teacher's new normal daily life guidelines during the COVID-19 pandemic crisis using mean and standard deviation. The resulting mean values were interpreted using the Bast and Kahn concept evaluation criteria [10].

3. Pearson's correlation coefficient was used to analyze the relationship between factors of school administration and the new normal daily life guidelines of teachers under the Office of Secondary Education Service Area 17, Chanthaburi Province, during the Covid-19 epidemic crisis, and then compared with the criteria of [11].

4. Analyze the factors of school administration that affect the new normal daily life guidelines during the COVID-19 pandemic crisis of teachers under the Office of Secondary Education Service Area 17, Chanthaburi Province by stepwise multiple regression analysis.

IV. RESULTS

Results indicated that 1. The analysis results of the level of administrative factors of schools under the Office of Secondary Education Service Area 17, Chanthaburi Province.

Table 1 shows mean and standard deviation of school administration factors under the Office of Secondary Education Service Area 17, Chanthaburi Province as a whole.

school administration factors	\bar{X}	S.D.	Opinion Level	Rank
1 Organizational structure	4.05	0.78	Agree	2
2 Management	4.01	0.77	Agree	4
3 Personnel Development	4.03	0.80	Agree	3
4 Leadership	3.99	0.79	Agree	5
5 Atmosphere and organizational culture	4.08	0.79	Agree	1

6 Technology and communication	3.99	0.85	Agree	6
Total	4.03	0.80	Agree	

According to the Table 1, the results of the study on the factors of school administration under the Office of Secondary Education Service Area 17, Chanthaburi Province overall was at a high. The atmosphere and organizational culture were found to have the highest average, followed by the organizational structure, personnel development, management, leadership, and technology and communication, which is accordance with the hypothesis.

2. The results of the analysis of the level of guidelines for the new normal daily life of teachers under the Office of Secondary Education Service Area 17, Chanthaburi Province

Table 2 shows mean, standard deviation of the new normal daily life guidelines of teachers under the Office of Secondary Education Service Area 17, Chanthaburi Province as a whole.

Guidelines for the New Normal Daily Life	\bar{X}	S.D.	Opinion Level	Rank
1 Using technology media and the Internet	4.03	0.81	Agree	3
2 Social distancing	4.03	0.77	Agree	2
3 Taking care of one's own and other people's health	4.04	0.8	Agree	1
4 Creating life balance	3.96	0.79	Agree	4
Total	4.02	0.79	Agree	

According to the Table 2, the results of the study on the level of the new normal daily life guidelines of teachers under the Office of Secondary Education Service Area 17, Chanthaburi Province overall were at a high level.

When considering each aspect, it was found that taking care of oneself and others had the highest average, followed by social distancing, using of technology media and the Internet. The last item with the highest average level was life balance which is consistent with the hypothesis.

3. The results of an analysis of the relationship between the factors of school administration that affect the new normal daily life guidelines of teachers under the Office of Secondary Education Service Area 17, Chanthaburi Province.

Table 3 shows the correlation coefficient between the factors of school administration and the new normal daily life guidelines of teachers under the Office of Secondary Education Service Area 17, Chanthaburi Province.

Variables	X ₁	X ₂	X ₃	X ₄	X ₅	X ₆	X	Y
X ₁	1.00							
X ₂	.107	1.00						
X ₃	.175**	.021	1.00					
X ₄	.106	.154**	.320**	1.00				
X ₅	.217**	-.010	.131*	.093	1.00			
X ₆	.016	.153**	-.069	-.139*	.200**	1.00		
X	.540**	.441**	.520**	.455**	.566**	.456**	1.00	
y	.407**	.412**	.635**	.611**	.221**	-.084	.696**	1.00

** the statistical significance of .01

* the statistical significance of .05

According to the Table 3, the results showed that Factors of school administration and new normal daily life guidelines of teachers under the Office of Secondary Education Service Area 17, Chanthaburi Province had a high level of positive correlation with the statistical significance.0.1, which corresponded to the hypothesis set.

When considering each factor, it was found that personnel development and leadership have a high level of positive correlation. The organizational structure and management have a moderate level of positive correlation. The atmosphere and organizational culture have a low level of positive correlation. The factors of technology and communication have a negative relationship at the lowest level with the new normal daily life guidelines of teachers under the Office of Secondary Education Service Area 17, Chanthaburi Province.

4. The results of the analysis of school administration factors affecting the new normal daily life guidelines of teachers under the Office of Secondary Education Service Area 17, Chanthaburi Province

Table 4 shows results of multiple regression analysis of school administration factors affecting the new normal daily life guidelines of teachers under the Office of Secondary Education Service Area 17, Chanthaburi Province.

Model	b	S.E.b	β	t	Sig
Constant	.514	.136		3.776	.000
Personnel development (x ₃)	.252	.017	.450	14.665	.000
Leadership (x ₄)	.250	.021	.372	11.982	.000
Management (x ₂)	.217	.019	.333	11.210	.000
Organizational structure (x ₁)	.134	.017	.234	7.829	.000
Atmosphere and organizational culture (x ₅)	.053	.017	.095	3.139	.002
Technology and communication (x ₆)	-.036	.015	-.075	-2.477	.014

$R = .879, R^2 = .772, S.E._{est} = .10475$

** $p \leq .01$ / * $p \leq .05$

According to the findings in Table 4, six school administration factors predicted the new normal daily life guidelines of teachers under the Office of Secondary Education Service Area 17, Chanthaburi Province: Personnel development, Leadership, Management, Organizational structure, Atmosphere and organizational culture, and Technology and communication. The multiple correlation coefficient (R) was.879, and the forecast efficiency (R²) was.772, equating to 77.20 percent with statistical significance levels of .01 and .05, which was consistent with the hypothesis.

V. DISCUSSIONS

According to the study of factors in school administration affecting the new normal daily life guidelines during the COVID-19 pandemic crisis of teachers under the Office of Secondary Education Service Area 17, Chanthaburi Province, there were some interesting points to be discussed as follows: 1. According to the study on the factors of school administration under the Office of Secondary Education Service Area 17, Chanthaburi Province, the overall was found to be high. It is consistent with the findings of [12], who studied Administrative Factors Affecting Effectiveness of Schools Under the Primary Educational Service Upper Northeast. It is also consistent with [13] who studied on Administrative Factor of School Administrators Affecting School Effectiveness Under the Office of Trat Primary Education Service Area and found that the administrative factors of school administrators overall and in all aspects were at a high level. And it is also consistent with [2] who studied

about Administrative Factors Affecting School Effectiveness under the Office of the Basic Education Commission in Sakon Nakhon province and found that management factors overall were at a high level. Additionally, [6] who studied on Administrative Factors Affecting School-Based Management of Schools under Khon Kaen Municipality found that administrative factors overall level was at a high level.

This could be due to that the administrative process of school administrators requires many factors to operate such as leadership, effective management, participation of personnel, communities, and other agencies involved in management planning in order to successfully manage schools. It is similar with [14], who said management is the process of achieving organizational goals through planning, organization management, using leadership, and control. It is also in accordance with [6], said that the management factors which were operated by administration division to achieve the objectives of the organization were leadership, a clear organizational structure, the same organizational culture, using information technology for teaching and learning, and management in organizations including communication with the internal agency and other agencies. Furthermore, [15] said that the factors of good school administration have all the appropriate components, namely social conditions, atmosphere, and environment around the learners that are conducive to appropriate learning, readiness in various resources, appropriate and quality materials, equipment, technology, as well as a sufficient budget and human resources.

2. According to the study on the level of the new normal daily life guidelines of teachers under the Office of Secondary Education Service Area 17, Chanthaburi Province, overall, it was at a high level. It is consistent with [16] studied on Knowledge and Behavior of People regarding Self-care Prevention from Novel Coronavirus 2019 (COVID-19), which found that the overall self-defense behavior from novel coronavirus infection in 2019 was high.

Furthermore, according to teachers' awareness and understanding of the COVID-19 epidemic situation, as well as their new normal way of life, that is, adjusting everyday behavior so as not to get sick, have a healthy physically, intellectually, emotionally, socially, and environmentally well. As a result, teachers have a higher standard of living. It is consistent with [17], who said that the use of conscious knowledge or awareness of the truth or situation in dealing with one's own disasters and emergencies keeps oneself and people around them safe. It is in accordance with [18] who said that the perception of life satisfaction, having a good life in various fields that can meet basic needs involving living, and affect the quality of life in a positive direction, such as

physical health, mental health, social relations, economic, environmental, and having good quality must not cause problems for oneself and society. According to [19] said that people in the central region have a good quality of life in terms of health care, exercise, eating hygienic food, be able to make decisions to solve problems including the community having a security system, a place to exercise, conveniently transportation, and satisfaction with the home environment. It is consistent with [20] who said that disease prevention is a matter of behavior, action, or refraining from doing anything in order to avoid being ill with various diseases including protection of more serious illness when disease is already present. In case of illness or infection disease, or after recovering from an illness, should avoid to disease again.

3. After studying on the relationship between the factors of school administration and the new normal daily life guidelines of teachers under the Office of Secondary Education Service Area 17, Chanthaburi Province found that there was a high level of positive correlation with the statistical significance at the .01 level, which was consistent with the hypothesis. It is consistent with the finding of [12], who studied on Administrative Factors Affecting Effectiveness of Schools Under the Primary Educational Service Upper Northeast. It was found that the correlation coefficients in all 7 aspects were positively correlated in terms of the administrative structure of schools, personnel and team development, the atmosphere and culture of organization, and information technology and communication with the statistical significance of .01. Additionally, there was a negative correlation, namely, the establishment of a shared vision, and motivation with the statistical significance of .01. According to [21], who conducted research on the relationship between administrative factors and performance based budgeting management in schools under Pathumthani primary educational service area office, it was found that the administrative factors had a moderately positive correlation with performance-oriented budget management of educational institutions with the statistical significance of .01. It is also accordance with [2] studied on Administrative Factors Affecting School Effectiveness under the Office of the Basic Education Commission in Sakon Nakhon province. It was found that management factors and overall school effectiveness were found to have a positive correlation with the statistical significance of .01 level. [16] who studied on Knowledge and Behavior of People regarding Self-care Prevention from Novel Coronavirus 2019 (COVID-19) found a moderate positive correlation between knowledge and behavior in preventing diseases caused by coronavirus disease 2019 (COVID-19).

4. After the studying on the factors of school administration affecting the new normal daily life guidelines of teachers under the Office of Secondary Education Service Area 17, Chanthaburi Province, it was found that 6 school administration factors variables mutually predicted the new normal daily life guidelines of teachers under the Office of Secondary Education Service Area 17, Chanthaburi Province at 77.20 percent with statistical significance of .01 and .05 levels, which were in accordance with the hypothesis. It is also consistent with [22] who studied on Relationship between Administrative Factors and Performance Effectiveness of Government Teachers under the Office of Secondary Education Service Area 4. It was found that administration factors and performance effectiveness of government teachers had a moderate positive correlation with the statistical significance of .01 level. The administration factors were able to predictive the effectiveness of the performance of government teachers at 47.1%. Furthermore, it is also accordance with [2] studied on Administrative Factors Affecting School Effectiveness under the Office of the Basic Education Commission in Sakon Nakhon province. The correlation coefficient was found to be between 0.588 and 0.774, with a statistical significance of 0.01 in all aspects of management factors in terms of 1) leadership; 2) organizational structure; 3) organizational culture; 4) information technology; and 5) communication and the administration level using the school-based model.

VI. RECOMMENDATIONS

A. Recommendations for Practices

1. According to the study on administrative factors of schools under the Office of Secondary Education Service Area 17, Chanthaburi Province, the factors of technology and communication was at a high level with the lowest score. Therefore, the administrators should build understanding for self-awareness regarding practice during COVID 2019 pandemic crisis, monitoring, consulting, advising, promoting to use technology media, and more communicating in order to enhance the effectiveness of communication and online learning and teaching management such as training, teamwork to help someone who is not good at technology, surfing the internet to get knowledge, consulting professionals, and so on.
2. According to the study on the new normal daily life guidelines of teachers under the Office of Secondary Education Service Area 17, Chanthaburi Province, the overall level of creating life balance was at a high level with the lowest score. Thus, the opportunity to work from home, reduce the number of days spent in the office, or reduce

meeting people in society should be provided in order to create a more balanced life during staying home, personal time, job, and society.

B. Recommendations for Further Research

1. Should investigate the guidelines for improving the quality of life of teachers during the crisis of the Covid-19 pandemic that affect the performance of teachers during the Covid-19 pandemic crisis.
2. Should investigate the factors of using technology and digital that affect teachers' performance during the crisis of the Covid-19 pandemic.

VII. CONCLUSION

1. The level of administrative factors of schools under the Office of Secondary Education Service Area 17, Chanthaburi Province overall was at a high level. It was found that the atmosphere and organizational culture was at the highest average, followed by the organizational structure, personnel development, management, leadership, and technology and communication.
2. The level of the new normal daily life guidelines of teachers under the Office of Secondary Education Service Area 17, Chanthaburi Province overall was at a high level. When considering each aspect, it was found that taking care of oneself and others was the highest average, followed by social distancing, using of technology media and the Internet, and the creation of life balance.
3. The factors of school administration and the new normal daily life guidelines of teachers under the Office of Secondary Education Service Area 17, Chanthaburi Province had a high level of positive correlation with the statistical significance of .01 level.
4. The six school administration factors variables in terms of Personnel development, Leadership, Management, Organizational structure, Atmosphere and organizational culture, and Technology and communication mutually predicted the new normal daily life guidelines of teachers under the Office of Secondary Education Service Area 17, Chanthaburi Province at 77.20% with the statistical significance of .01 and .05

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Gastronomy tourism marketing strategy management according to sustainability Tai I-SAN authenticity Geo-Social values

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Abstract— *The study of gastronomy tourism marketing strategy management according to sustainability Tai I-SAN authenticity Geo-Social values aimed to study and develop gastronomy tourism market strategy management based on social geography values and authenticity of sustainable Thai I-SAN style. Mixed methods research was used in the study. The data was collected from questionnaires, interviews and focus group. The samples were tourists, local people, government agencies and private sectors involved in gastronomy tourism in Khon Kaen Province. The data was then analyzed using descriptive and content statistics. The results showed that potential of Gastronomy tourism marketing strategy management according to sustainability Tai I-SAN authenticity Geo-Social values, including the image of Tai I-SAN food and stories telling of interesting origins and identity tourist attractions based on Tai I-SAN social geography caused the diversity and attractiveness of gastronomy tourism event. In addition, learning was promoted through gastronomy tourism activities such as souvenir shops and tourist attractions that produce ingredients for cooking. In terms of supporting services such as car rental management, convenient transportation and the availability of personnel, it was like a community image. Personnel with foreign language proficiency, immediate problem-solving ability, information problem solving of activities, and a variety of information search channels would lead to gastronomy tourism marketing strategy management according to sustainability Tai I-SAN authenticity Geo-Social values 8 strategies: 1) food products 2) food prices 3) location of tourist attraction or raw material source 4) promotional activities in marketing 5) personnel 6) food promotion 7) communication channels for public relations and 8) sustainability development process.*

Keywords— *gastronomy tourism, marketing strategy management, sustainability Tai I-SAN authenticity*

I. INTRODUCTION

Gastronomy tourism is another tourism pattern to reflect of local cultures in countries with the tourist attractions to search for the experiences with the different consuming and drinking styles [1]. Furthermore, food is one part of tourism activities, and gastronomy tourism aids to attract the tourists around the world for travelling in the local area until the tourism is expanding continuously. In addition, according to the direct and indirect gastronomy tourism economics benefits for the community it received incomes from food tourists for developing as the valuable tourism food products. [2] Then, the gastronomy tourism is the theory to transfer histories, cultures, and local lifestyles through food to gain the inspiration of cultural conservation in Thailand. [3] With this case, the food is important to be one part of tourism with the

connections to have the learning requirements and new testing from local or community cultures with representing to the uniqueness and identities of the community or local areas. In this case, the local food development is essential because it will create the good image for our Thai tourism with the conservation in the local cultures. However, due to the epidemic of Covid-19 it resulted in the tourism throughout the world to be halted with the reducing of tourist growth; according to the disease controlling measurement in each country it affected to the economics activity stagnation with the abnormal lifestyles to have the wide effects including of the market tourism, such as inbound, outbound and tourism inside the country. As the result, according to the policy or the measurement to renew the tourism of public relations with making confidence to the tourists, such as safety and sanity, provident fund establishment and employment support and others.[4]

According to the North Eastern region, it is one part of Thailand with the culture to live with the uniqueness for self-reliant society in agriculture works, such as farms, gardens, grain crops, animal raising, clothes weaving, basketry and finding natural food from land and water areas, and mostly it came from the natural resources. Then, the food is sufficient for the members in families, especially for the Northeast people to have the local special food to consume as the vegetables to be the main menu. [5] In addition, the consuming of their food is available to the relationships between life styles, environments and local intellects that are the North East people can select for the local food sources consisting of the local unique recipe combining to the beliefs of advantages and characteristics for food inheriting from the ancestry. Besides, it has the uniqueness system for the North East food with three obvious characteristics; namely, the food source of Hodfah soil, the bitterness with spiciness, sourness and acerbity from nature and consuming with rules. [6] As the result, according to these local intellects for consuming it represents of the smart consuming with reason from the diversity of environments and nationalities including of the consuming intellects and the preservation for living resulting from the learning to be available for the values and the importance of the ancient intellects. Therefore, it should promote and develop the local tourist attraction activities in North Eastern region by presenting the marketing strategy guidelines for the gastronomy tourism market with the local intellect values as sustainable system management, and it can make the credibility and good image for the tourists and customer groups through the North East food culture presentation of new innovation management based on the local culture food with life styles, traditions, local intellects and local cultures. [7] With this case, it can regulate the direction for the community development as being the gastronomy tourism resources with specific characteristic and the promoting of gastronomy tourism production to have the increasing potential with many fields.

II. RESEARCH OBJECTIVES

In this case, it is involving with the second chapter or the research objective: 1) To study the gastronomy tourism potential with North East local intellect values and 2) To develop the tourism marketing strategy with local intellects value into the sustainability.

III. LITERATURE REVIEW

A: the component of the tourism resources

According to the tourism system component, it consists of the connection for the tourist journey with the destination of the

tourist attraction and travelling. In this case, according to the concept idea of Mr. Page [8] it gave the definition that the tourism is the response of the tourist travelling with the moving from the permanent accommodation into the new destination during the times combining with the tourist journey connection for habitats, communication, tourist attraction activities and tourist services. Then, the tourists are convenient to travel as shown in fig. 1.

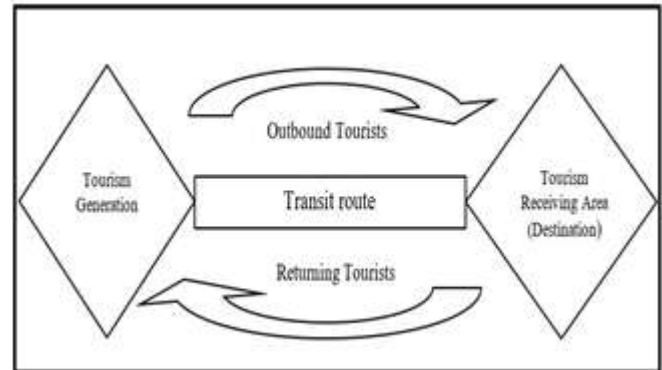


Fig. 1 the tourism system

Additionally, according to the tourism system it was found that there are two connecting parts that are demand and supply, and in these contexts the demand factor refers to the tourist requirement for travelling to the destination and the supply factor refers to the readiness of tourist location for travelling to the destination with requirement response: 1) Accommodation 2) Associated services 3) Attractions 4) Activity 5) Accessibility

B. Market Segmentation

According to the tourist attraction development and the tourism products, they are necessary to use the market mechanism for making the movement with the tourist attractions and response with the community and tourist requirements as Marketing Mix or 8P's with the concept idea of Mr. Lovelock and Wright [9] as the objective: 1) Products Element 2) Place 3) Promotion and Education 4) Price and Other User Outlays 5) Process 6) Productivity and Quality 7) People and 8) Physical Evidence.

IV. RESEARCH METHODS

Then, according to the study it has gathered the data from the questionnaires of sample size, such as four hundred tourists with simple random sampling and interview from the group sampling; namely, the people in local area, the government agencies and the relevant private agencies with food tourism in Khon Kaen provincial area for ten people. Furthermore, it is including with the Observation Participation and the In-depth Interview with Semi-Structured Interviews for

gastronomy tourism, North East culture, social intellects value and true fact of North East people, and it has the data analysis from checking data with the concept idea of principle, theories and In-depth interview data from the descriptive presentation and the concept idea of the objectives by checking the quality of questionnaires and interviews of the contents validity of IOC: Index of Consistency with three experts to check for the Index of Item – Objective

V. RESEARCH RESULTS

According to the result, it represents to the potential of gastronomy tourism with social intellect values for the Northeast fact with sustainability including of the gastronomy tourism resources by setting up for the activities with the Northeastern social intellect values of sustainability:

1. Accessibility, such as the communication in Khon Kaen province no matter of the areas in cars, trains, air plane and free WiFi ones including of gaining the readiness to be the regional center for travelling.
2. Ability to register for the available packages, such as the creative gastronomy tourism programs that are the gastronomy tourism program, the material source processing on sightseeing program, the food processing on sightseeing program and others.
3. Ancillary Service, such as souvenir shops, hospitals, oil stations and post offices.
4. Tourism Activities, such as setting for the additional activities no matter of watering, plowing, harvesting, hiking or joining in the important ceremonies in festivals.
5. Attraction, such as many tourist attractions no matter of culture tourism, natural tourism, food tourism and agriculture tourism.
6. Authenticity that is the tourist attractions on the basis of true information from the ancient city areas, the old towns and the historical tourist attractions.
7. Accommodation, such as residents, hotels, resorts, homestays, guest house with bed and breakfast and others for placing of the tourists in every different levels.

According to the result for tourism market strategy, it is involving with the authenticity of the Northeast local intellects for sustainability:

1. Food Products, such as the varieties food menus with the objectives to gain the modern with easily consumed for attraction.
2. Food Price to be in suitable level with good quality for the food manufacturing services and easily memorization classified into the different service levels.
3. Locations of Tourist Resources or Material Resources, such as the accessing for the tourists in the community areas

with the local food material sources by learning life styles and well-beings.

4. Marketing Promotion Activities, such as the event setup to the local food presentation with the products and the community interests between entrepreneurs and tourists no matter of the original local food competition and new menus creation and others.
5. Personnel, such as having the good personality with knowledge, food presentation skill, gentleness, good manners and tidiness to be trained in the servicing or food product presentation.
6. Distribution Channels, such as increasing for the local food distribution channels through online and offline ones no matter of Facebook page, application line or online shops ,such as LAZADA, SHOPEE, JD Central and others.
7. Public Relations Channel, such as creating the food product public relations with the community to be well-known from the tourists by posting pictures, videos, news and food with contacting channels including of doing the posters and brochures as the new presentation development.
8. Development Procedure with Sustainability, such as PDCA procedure to make the practices consisting of Plan before setting up the food tourism activity, Do for taking action of food tourism activity, Check for the food tourism activity and Act for improving the management to level up the food product quality following by the six chapter or Discussion.

VI. DISCUSSIONS

Thus, the tourism resource component is one factor for travelling because it has the connection with communication, tourism activities and tourism services by increasing the convenience with the concept idea of Mr. Weaver and Lawton [10] : 1) Accessibility 2) Availability of Services 3) Affordability 4) Activity 5) Attraction 6) Authenticity 7) Accommodation from the tourism resource component to have the readiness and the response for the decision requirements with the destination including of the tourism potential informing prior to use the marketing strategy as the food development for the Northeast authenticity with sustainable intellect values, following by the concept idea of Mr. Kotler and Keller [11] saying that the selling is the influencing factor to the consumer decision with the necessity to use the marketing segmentation of 7P's for determining the marketing strategy.

VII. CONCLUSION

According to the marketing strategy for gastronomy tourism with the authenticity of Northeast local sustainable intellect values, it was found that food is accounted as the main component for the gastronomy tourism activity in the tourism

industry, and it can build the tourism experiences congruently to the tourist market trends with the future requirements. Thus, it is involving with the products and the services as the high opportunities and potential for boosting up to gain the good quality and the accepted standard in the world class contributing to the economics development through the products and service value increase. In addition, it is including with the culture origin and the unique life style of Thailand to create interests and attraction for the tourists, especially for the top market potential with the food interest by travelling to learn and exchange of new cultures in each area as well as the incomes distribution to the quality life development for people in local area and the overall economics. Furthermore, it also promotes for the good image of Thailand as being the popular destination for the tourists around the world through the cultures and the gastronomy tourism. With this case, it consists of the food tourism resource components with the authenticity of the important Northeast social sustainable intellects : 1) Accessibility 2) Available Package 3) Ancillary Service 4) Activity 5) Attraction 6) Authenticity 7) Accommodation.

Then, it used the marketing strategy as the gastronomy tourism development tool with the authenticity of the Northeast social sustainable intellects:

1. Food Products as being developed from the various food menus.
2. Food Price that has the suitability with good taste and quality with food manufacturing service in each community
3. Location that has the tourist attraction area or the material resources that the tourists can access to the community areas as being the local food material resources for the tourists to learn the lifestyle and the well-being.
4. Market Distribution Activity by setting up the event to present of the local food products with the tourist interests for the products and the community in patterns between the entrepreneurs and the tourists
5. Personnel or the entrepreneurs to have the good personality with knowledge and food product presentation skill
6. Distribution Channel by increasing the selling channels for the local food products through online and offline routes.
7. Public Relation Channel to setup for the food product public relations with being well-known from the people in the community, especially by creating the Facebook page to post pictures, videos with the development.
8. Sustainable Development Procedure, such as using of PDCA era that procedure Plan, Do, Check and Act to make the sustainable movement into the practices

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Factors of gastronomy tourism event of Khon Kaen "MICE City" according to Tai I-SAN authenticity Geo-Social values

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Abstract— Research on factors of gastronomy tourism event of Khon Kaen "MICE CITY" according to Tai I-SAN authenticity Geo-Social values aimed to 1) analyze the environment and current situation in terms of gastronomy tourism event of Khon Kaen "MICE CITY" based on social geography values and authenticity of Tai I-SAN style and 2) consider the behavior and needs of tourists towards gastronomy tourism event of Khon Kaen "MICE CITY" based on social geography values and authenticity of Tai I-SAN style. This study was a survey research. The sample group was divided into 3 groups: government agencies, private sector agencies and business operators in the relevant tourism industry. This was to answer the research objectives. The research team classified the tools for data collection, namely questionnaires and interviews. The research results showed that factors supporting gastronomy tourism activities of Khon Kaen "MICE CITY" based on social geography values and authenticity of Tai I-SAN style were: the taste of food was identity based on social geography and Tai I-SAN style, quality ingredients that could be found locally were a good reflection of the local way of life and culture and presentation of story telling with dood and facts based on social geography and the source of the ingredients or food attractions would be the factors that made the traveler a real impression on a food trip.

Keywords— gastronomy tourism event, social geography values, Khon Kaen "MICE CITY"

I. INTRODUCTION

According to the first chapter or the Introduction it shows that tourism is an industry that generates income continuously to countries around the world; tourism industry revenue is the income that is widely distributed to the population for creating jobs and build careers. Moreover, it also helps to support the restoration and conservation of arts, culture, and traditions which attract the attention of tourists for creating prosperity to different regions when traveling from region to region. With this case, tourism is one of the businesses that influence the economy of the world, and according to the World Tourism Organization (UNWTO) with the growth study of tourists found that in the year 2030 it showed that the growth rate of global tourists arrivals increased to 1.8 billion people with the continuous growth of the tourism industry. [1] Then, the industry's MICE (MICE) is recognized increasing as a key mechanism in the region's tourism industry with growth and it is important to generate income and employment for the country. Additionally, MICE travelers have specific business goals with high purchasing power, and there is a demand for good quality products and services, such as food and beverages, airlines, hotels, freight forwarding

businesses, domestic travel and others. [2] Therefore, the average expenditure of the MICE group is higher than the general tourists, however, due to the COVID-19 epidemic situation in December 2019, to be spread widely, according to the UNWTO report, the outbreak of this epidemic has affected to the society in all levels. Thus, in terms of the economy, it causes the slowdown in tourism with the most risk, and 80% of small and medium-sized enterprises of the population are at risk, so this is a shared challenge for everyone to be part of a solution and adaptation, [3] for the COVID-19 epidemic in Thailand. With this case, Thais and foreigners are reducing, as well as the less purchasing power for both Thais and foreigners. Furthermore, social distancing measures and various sanitation measures have increased the cost of operators and higher tourism prices because many people may not have sufficient money to spend on tourism. In addition, the overall atmosphere of tourism will change after people don't spend much due to the "New Normal" that travel is less with the banning on group activities with the delaying for crossing into another province areas.[4] On the contrast, Thailand's tourism situation from now on must depend on the cooperation of various sectors that still need to be watched and maintained strict standards by preventing the spread of Covid-19 with the reducing chance that the Covid-19 will

come back to spread again which will affect the competitiveness and opportunities in the tourism market. [5] Thailand MICE tourism is continuous to grow, and according to the report of the World Association of International Conferences (International Congress and Convention Association (ICCA) now Thai MICE industry is ranked 4th in Asia [2] for international conferences. Thus, it is the second only for Japan, China, and Korea, but is ranked number one in ASEAN while Thailand is ranked 5th in Asia. Then, Khon Kaen is one of the five provinces chosen as the meeting city or a center of transportation, trade, investment, education, health, innovation, especially the city of tourism with diversity for both of natural attractions, historical attractions, traditions, lifestyles, arts and culture including of local food culture. [6] Besides, it is a cultural heritage in tourism for each area, and the knowledge of food in the local area is consistent with the geographical, social and intellects of ancestry, and in the large hotel it has a large convention center, restaurants and shopping centers.

Furthermore, it is also one of the five provinces to be chosen as a meeting city with the rewarding including of the Travel International Conferences and Exhibitions (MICE – Meetings, Incentive, Conventions/Conferencing, Exhibitions/Event) to be known as MICE City or the fifth province of Thailand and the first province of the Northeast region. Then, this is part of the key strategy under the Thailand 4.0 policy to manage the economy with convenient transportation, such as in the area of car, train, plane and free Wi-Fi in public areas, and it is a medium to deal with the international business events, such as the APEC Ministerial Meeting, International Conference on Humanities and Social Sciences and Thai-ASEAN Trade Fair.

Gastronomy Tourism is a supportive tool that encourages tourists to visit the attraction because local food is unique, and it has been passed to the next generation which is essential to present identity and culture to a traveler's destination. Moreover, it can make interest in tourist visiting for the first time impressed with the taste of the food until they would like to come back to visit again in the future, [4] especially for the good food in each area, and it creates a contribution to the conservation of local food identity as well as adding value and value to local food, then, the distribution of income to the community in a sustainable way for supporting.[7] With this case, MICE industry is a medium of communication knowledge of food culture in the community, [8] especially for Northeast food, and from the above reasons, the students are interested in studying environment analysis and current situation in gastronomy tourism. Moreover, According to the values of social landscape, it is involving with the authenticity of the Northeast of Khon Kaen MICE City and the behavior with the needs of tourists towards gastronomy tourism. In this

case, according to the values of the real Northeast landscape of Khon Kaen MICE City it presents to the Northeast food that is the authentic and traditional identity of Khon Kaen province which is regarded as cultural wisdom heritage including of the supporting as the center with the tourism development strategy of Khon Kaen Province.

II. RESEARCH OBJECTIVES

1. To analyze the environment and the current situation of organizing food tourism activities with the values of the social landscape, and the true authenticity of the Northeast of Khon Kaen MICE City and 2. the behavior and needs of tourists towards organizing activities Food tourism with the values of the real Thai I-SAN landscape of Khon Kaen MICE City.

III. LITERATURE REVIEW

In this case, it is involving with:

A. the event or the event management with the different objectives, except with these activities that is the need to create or influence the individual experience or the shared experience [9] of the audience and the participant with the conceptual classification in four main types with the special event characteristic [10] according to Figure 1:



Fig. special event characteristic

1) Special events related to sports and entertainment or Leisure Event that is relevant for sporting events and entertainment or consisting of various recreational activities 2) Special individual activities or Personal Event that is a personalized event or a special marketing event organization to celebrate or commemorating on important occasions. 3) Cultural special events that are special marketing events involving with rituals, culture art or religious beliefs 4) Special events related to organizations or institutions or Organizational Event with the most activities of organizations or institutions.

B. Environment Analysis or SWOT Analysis of environment and potential that is a tool to assess the situation for organizations or events.

Then, it can determine the strengths and weaknesses from the internal environment with opportunities and obstacles of the external environment, and it is involving with the potential impact of these factors with the functioning of the conceptual activity to be described [11] as SWOT stands for S (Strengths) means strengths or strengths which is a result of internal factors. Besides, W (Weaknesses) means Weaknesses as a result of internal factors or a problem or defect caused by various internal environments while O (Opportunities) means chance caused by external factors with the result of the company's external environment favoring or promoting its operations and T (Threats) with the meaning as barrier caused by external factors. Additionally, it is a limitation caused by the external environment and tries to eliminate obstacles.

IV. RESEARCH METHODS

This research study uses survey research by using questionnaires as a research tool to explore the variables used in research. In this case, the three sample groups are government agencies, private sector and business operators in the tourism industry involved Means of sampling (purposive 'Sampling) in the province of 30 studies with data collection from observations or Observation Participation, discussion groups or the Focus Group and the in-depth interviews and semi-structured interviews on gastronomy tourism as Northeast culture values according to the social landscape.

Table 1 Data Collection

Research Tools	Sample size	Key Informants
In-depth Interview	10 people	- Government agencies - Private sector - Entrepreneurs in the relevant tourism industry
Focus Group Discussion	The groups were divided into 3 groups and 5 people each, a total of 15 people.	- Government agencies - Private sector - Entrepreneurs in the relevant tourism industry
Observation Participation	10 people	- Experts and experts in local food culture

Therefore, it makes analysis with the examining of the data with concepts, theories, and data from in-depth interviews; descriptive presentations and conclusions as the requirements.

V. RESEARCH RESULTS

1)The results of the analysis of the environment and current situation in tourism activities food according to the values of the social landscape, the authenticity of the Northeast of Khon Kaen, MICE City with the study result on marketing mix (7 P's) of food tourism activities according to the values of the social landscape. Besides, it is involving with the authenticity of the Northeast Khon Kaen's MICE City with the following products or services as follows: 1) food self-identity, 2) a clean, hygienic 3) lecturer with expertise and 4) Exhibition with the adding value for local food price: 1) the price of products or goods that is not too high and not too low; 2) the clear point to set a fixed price; 3) the attractive local food

tourism program with the interest organizing events as follows: 1) The location to be easily accessible 2) The parking place to accommodate a large number of participants 3) The closeness to the city 4) The convenient location with cleanness, and neatness. 5) Location near amenities that the marketing promotion (Promotion) to be as follows: 1) Organize activities that attract attention on a regular basis 2) Provide special strategies to attract attendees 3) Organize challenging activities to arouse the interest of tourists 4) Setup for interesting promotion, such as a package program with accommodation, air ticket and tourism programs with Personnel or People to be follows: 1) Organize training for personnel to increase their potential in organizing events 2) Personnel with cleanness, neat dress with suitable place by speaking gently 3) The public relations agency to recommend activities 4) Employees accept for the presentation of local food and value, except for Latta conservative local cuisine or the Physical Evidence and Presentation: 1) average 2) the colors of the food 3) food containers and 4) the story or the source of food. Then, the planning process is as follows: 1) selection of the venue for the event 2) selection of local food items 3) setting the duration of the activities and 4) positioning the personnel to perform their duties in each activity segment With this case, it is involving with the analysis of the potential strengths, weaknesses opportunities and threats of the Khon Kaen Province:

Strengths

This province has the advantage in geography, and it is the transportation hub of the Northeastern region located along the EWEC and NSEC economic corridors with the connection to the East Sea. Besides, it is the center of government administration and services in the Northeastern region as the resident of the consulate generals in China, Vietnam and Laos: 1.The important food or renewable energy crop production source, such as rice, sugar cane, cassava plants, and important animal production sources no matter of beef cattle or the 4th in the upper northeastern region, chicken and meat as well as a food or beverage processing source 2. A medical and public health and education service center 3. The location of central government agencies, regions, and local authorities, totaling more than 450 units which is an important tool to serve people and develop the province. 4. The Ubonrat Dam or a multi-purpose dam used for electricity, irrigation, aquaculture, and tourist attractions. 5. The Power plants from waste energy for urban areas by creating the energy security for the urban area. 6. The standardized exhibition center and seminars. 7.The transport traffic system in the city that is connected to the network. 8. Educational center that are both public and private higher education institutions with fifteen

Weaknesses:

1. the most population with low-income with the proportion of the poor ranked 0th in the country, 3rd in the region, 2nd of the group, mostly in the agricultural sector. 2. The production of labor without the meeting of the market demand and a shortage of skilled and unskilled workers in the industrial and service sectors. 3. The 18th dirty ranked province of the country with the 8th highest accumulated residual waste in the country for 1,224 tons/day of waste with the efficiency of waste disposal as only 328 tons/day by being disposed technically just 206 tons/day. and 4. Rapid urbanization causes congestion in communities and traffic as well as causing security problems in life and property with the public infrastructure to be insufficient for supporting with the expansion of the town 5. Most government personnel still lacked development in English and ASEAN languages. 6. The utilization of air transport is not yet able to reach its full potential.

Opportunities:

1. Green Economic Development or UN 2. Thai Kitchen to the World's Kitchen Policy with the promotion of people's access to capital 3. The Smart City for 1 in 7 cities of Thailand 3. The SEC approved in principle on February 22, 2012) with the establishment of a green industrial estate in Khon Kaen Province 4. The entry into the ASEAN Community increases the consumer market with the increased demand for goods and services and tourism. 5. Demand for safe food consumption. 6. Policy to promote the cultivation of renewable energy crops. 7. Investment in infrastructure development. Thus, according to the strategy of developing the transportation infrastructure of Thailand in 2015-2022, such as double-track railway, land port and expansion of Khon Kaen Airport 8. Agricultural promotion policies in zoning areas with the promotion of organic agriculture 9. An increase for visitors and tourists 10. The establishment of a Sister City relationship in Fu Jian and the People's Republic of China

Threats:

1. Epidemic of the COVID-19 virus 2. The expansion of the industry or service sector with the change to use of land from the agricultural sector. living and service business. 3. The modern and fast technological progress with applying for the Western culture into everyday life affects the lifestyle of people in society and the quality of education with quality of life to be decreased. 4. Drug epidemic problems. 2) The results of the analysis of behavior and demands of tourists towards organizing activities for gastronomy tourism according to the values of the real Northeast landscape of Khon Kaen, MICE City.

In terms of the image of the city, Khon Kaen Province, it has the potential for entry into a smart city and a meeting city of MICE City that is the center and location of government agencies. Besides, the regional state enterprises are the location of the consulate of the People's Republic of China or Socialist Republic of Vietnam Lao People's Democratic Republic and the Republic of Peru with having schools, hospitals and medical centers that is modern.

Then, according to the venues and facilities, it is including with a place in the event of MICE to accommodate in groups, and the event has received Thailand MICE Venue Standards (TMVS) certification from the Convention and Exhibition Bureau (TCEB) of seven locations with the large number of tourists and a wide variety for degree that are in workshops on food and organic agriculture.

As for restaurants and souvenir shops, there is a central market where you can eat, travel, shop all days, and there is a souvenir shop with the variety of restaurants and prices.

In terms of transportation or infrastructure, it is the center of the region with quick and convenient access as being the convenient transportation in the areas of cars, trains, planes and free Wi-Fi in public areas with 661 points.

There is a communication infrastructure network connected to neighboring countries and communication systems, but the traveling by plane still has the needs to be developed, such as the few airlines connecting between countries.

In terms of tourist attractions and activities, it is one of the main tourist destinations in Thailand, and there are the cultural attraction agritourism OTOP Tourism Community, Nawat Withi, Community Learning Center in Khon Kaen Province and museums in Khon Kaen Province with the food festival activities of Khon Kaen Province.

According to the safety and sanitation, it has seen that Khon Kaen has a high security system for the MICE events, but there are still some outdoor venues with unsafety, so it should have the health care facilities and modern hospitals.

VI. DISCUSSIONS

The above study, it shows of the behavior and demands of tourists towards gastronomic tourism activities to be regarded as a hallmark of quality with the goods of festival exhibition including of the consumer culture to be organized regularly from time to time in each area with the regional, national and international level. In addition, according to the concept of Hall and Sharples [12] it shows that food also creates a basic experience for tourists who travel in that tourist attraction for doing the local food activities with attraction or tourist attraction engagement. Then, food can create a diverse local tourism experience according to the concept of Everett and Aitchison [13] by organizing food tourism activities with the

values of the social landscape and the authenticity of the Northeast of Khon Kaen MICE City. In addition, it is involving with the analysis result of the environment and current situation in organizing food tourism activities including of the values of the social landscape and the authenticity of the Northeast of Khon Kaen MICE City to find that the marketing mix (7P's) affecting to the organization of activities. Thus, the product or service value adding of local food price or place for organizing events, marketing promotion and personnel or the People) and the presentation of local food and value, except on Latta look vernacular cuisine or Physical evidence and presentation) and the planning process.

VII. CONCLUSION

Khon Kaen is the center province of the northeastern region, and it is the main tourist city in the central northeastern provinces with the readiness to be a big economic city trade and investment center of Khon Kaen Province. Besides, it is ready to support tourism by organizing meetings, seminars, and exhibitions for supporting both of the domestic and international level. As a result, Khon Kaen Province has the potential to be a center of the tourism development strategy with the meetings and exhibitions that is ready to support both national and international tourism and meetings. Besides, the government agencies and the private sector have the continuous provincial development plans ,especially for the public transport system that has developed the expansion of Khon Kaen Airport to the international airport for accommodate with the tourists' flights including of the MICE travelers who travel to Khon Kaen Province which are in line with the strategic plan of the Khon Kaen Provincial Development Plan in the Year of 2018 – 2021 under the vision of the pleasant city for Khon Kaen ,and the trade and investment linkage center and service of the Mekong Sub-region consists of 3main missions as follows: 1. Strengthening communities with the people in the community to have a well-being. 2. Develop to be a sustainable city 3. Develop the capability of goods and services to raise the standard of goods and services for meeting with the market demand. 4. Develop the potential of the province to be the center of the Mekong sub-region ,and in selecting the area of Khon Kaen MICE City for organizing food tourism activities. Thus, it is one way to support MICE tourism in Khon Kaen by relying on community participation in exercising land ownership rights and culture [14] owner which makes it possible to determine the direction of community development for being a tourist attraction that is totally unique to the community. Besides, it can organize food tourism activities with the convey meaning and present part for the conservation

process by promoting and developing for local food tourism activities in the Northeast. Then, it can express with Northeast identity that conveys from the way of life, tradition, wisdom and local culture including of the knowledge in Northeastern food through the presentation of the food culture of Northeast people with the new management innovations to be known and showing with the naturalness, sincerity and expression of the identity, and it can be presented through the food tourism activities of Khon Kaen province for applying to other tourism areas in Thailand Next.

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Development of Marketing strategy for Cordyceps militaris Entrepreneurs Among The working Age Consumer in Phra Nakhon Si Ayutthaya Province

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Abstract— The research on “Development of marketing strategy for Cordycepsmilitaris entrepreneurs among the working age consumer in Phra Nakhon Si Ayutthaya province” is an applied research to study the market system for Cordycepsmilitaris products, purchasing behavior and factors influencing the purchase decision of Cordycepsmilitaris among working-age consumers and presents marketing strategy for Cordyceps militaris to the entrepreneurs. The population in this research was divided into two groups, namely 400 consumers who had ever consumed cordyceps militaris products (Yamane table) and 20 cordyceps militaris entrepreneurs using a purposive sampling method. Data collection was done by using questionnaires and in-depth interviews. The results were analyzed with descriptive statistics and complex comparisons. (LSD) and time series forecasting as well as organizing meetings for cordyceps militaris entrepreneurs and marketing experts.

Research results showed that the cordycepsmilitaris market system has both direct and indirect ways; The demand level for Cordycepsmilitaris products has a continued trend; Buying behavior of cordycepsmilitaris consumers is longer than 1 year of purchase; Most of consumers buy for the product for their own consumption via online channel; The purchase cost is more than 500 baht per time with the purchase frequency of 1 month per time. The most important factors influencing purchasing decisions are to feel safe from using the product, followed by the price that is suitable for the quality. Considering marketing strategy, the main target group is female consumers aged 30-50 years with high income and bachelor's degree; Product strategy is to aim to produce quality products with outstanding features and packaging development; Pricing strategy is to use cost-based pricing; The distribution channel strategy includes both offline and online distribution and; The marketing promotion strategy is conducted with integrated marketing communication strategy to create consumer experience and confidence.

Keywords— Strategy development, Cordyceps militaris, Working-age, Entrepreneurs

I. INTRODUCTION

At present, the Cordyceps militaris are widely popular in Thailand, especially among the consumers of working age and the elderly and those who love health or use it to treat their own diseases because Cordyceps militaris contain high levels of protein, vitamins, antioxidants and amino acids. It also has properties for treating allergies, inflammation, asthma and bronchitis, as well as improving nervous system function [1] The sale of dried Cordyceps militaris in Thailand is about 250,000 baht to 40,000 baht/kg. Although the cultivation of the Cordyceps militaris had increased exponentially, it was still not enough to meet the market demand. The consumption of Cordyceps militaris continues

to grow[2]. Phra Nakhon Si Ayutthaya Province is a province in the central region and is an important industrial economic zone. The province's gross domestic product is the 3rd highest in the country [3]. It has a total population of 819,088 people. There are 382,713 working day people in the age range 20-59 years old [4]. It is considered that the Cordyceps militaris Market is a very large market, especially for working age customers and the elderly. According to statistical data, 100,000 people will have a target of at least 3,000 people in the Cordyceps militaris market. It can be estimated that in Phra Nakhon Si Ayutthaya Province, the sale of the Cordyceps militaris generates a monthly income for the target group of not less than 700,000 baht (50% market share) and may generate income of not less than 100,000 baht per month. Thus, it shows that the opportunity of the Cordyceps militaris operator can create a career and make a stable income if the

entrepreneur has a marketing strategy that meets the needs of the target consumer group. Due to the increasing popularity of Cordyceps militaris consumers, the operators of Cordyceps militaris should develop a competitive strategy of Cordyceps militaris among working age groups in Phra Nakhon Si Ayutthaya Province. This is for the benefit of community enterprise entrepreneurs and as a guideline for developing strategies to meet the needs of consumers in the working age group.

II. RESEARCH OBJECTIVES

- 1) To study the system of the Cordyceps militaris product market in Phra Nakhon Si Ayutthaya Province
- 2) To study the buying behavior and factors influencing the purchasing decision of the Cordyceps militaris of working age consumers.
- 3) To present a marketing strategy about the Cordyceps militaris among working age groups to entrepreneurs in Phra Nakhon Si Ayutthaya Province.

III. LITERATURE REVIEW

The research on the development of marketing strategies for the Cordyceps militaris entrepreneurs among working age consumers in Phra Nakhon Si Ayutthaya Province was based on concepts, theories and related research as well as various factors related to the development of marketing strategies related to the Cordyceps militaris among working age groups for entrepreneurs in Phra Nakhon Si Ayutthaya Province.

3.1 Relevant theoretical concepts

The general concept of consumer characteristics includes the attitudes, motivations, experiences and lifestyles of consumers. The concept of [5] That consumer attitudes referred to trends acquired from prior learning in relation to a person's preferences or dislikes arising from the values and beliefs that influenced consumer behavior during that time.

According to the concept of [6] Consumer behavior factors included reason of purchase, time of purchase, timing of purchase, place of purchase and date of purchase. Although consumers could find information on the purchase, use of services, assessment of the use and non-use of products or services to meet their own needs, the right way for marketers to strategize to meet consumer satisfaction was: asking the question of buying - what, where, when, why.

Marketing strategy factors for the Cordyceps militaris operators of working age groups in Phra Nakhon Si Ayutthaya Province consisted of products, prices, place or distribution channels, promotion, people, process and physical evidence. According to the modern marketing concept of [7] The marketing mix had seven components: (1) Products consist of

product quality, product style, durability, brand design and packaging. (2) Price is the amount a person pays to purchase a product or is the value a consumer pays in exchange for a desired benefit. (3) place must take into account convenient access. (4) Promotion is a marketing communication process by communicating to distribute information to customers according to their behavior. (5) Personnel or employees rely on selection, training and motivation to create satisfaction. (6) Process is a service offering to allow users to receive services accurately and quickly. (7) Physical evidence is the creation and presentation of physical characteristics and forms of service to consumers.

3.2 Relevant research

[8] Studied the marketing mix factors influencing the purchasing decision of dietary supplement containing cordyceps extract of consumers in Bangkok. The purpose of this research was to study the marketing mix factors influencing the purchasing decision of dietary supplements containing Cordyceps extract of consumers in Bangkok, and to study the purchasing decision model of dietary supplements containing Cordyceps extract of consumers in Bangkok. The results showed that marketing mix of products, price and promotion had a statistically significant influence on consumers' decision to purchase dietary supplement containing Cordyceps extract in Bangkok at 0.05 levels. In consumption of 1 kg of Cordyceps per time, the frequency of consumption was 2 times a month. There was a low level of purchasing decision to try out, and there was a moderate level of purchase decision in repurchase and post-purchase decision.

[9] Studied the factors influencing consumers in purchasing herbal dietary supplements in Nai Mueang Subdistrict, Mueang District, Lamphun Province. It was found that in terms of purchasing decisions, the sample group focused on employees who provide service with politeness, good-naturedness, honesty and expertise in working. Communicating or explaining various details to customers could also have a significant influence on their purchase.

[10] Studied the marketing strategies influencing consumers' decision to buy dietary supplements in Warin Chamrap District, Ubon Ratchathani Province. It was found that the sample group focused on good human relations, clear knowledge of products, equal services, and prompt service and politeness of employees.

[1] Researched the business plan of medicinal mushroom supplement products to nourish the body. It was found that Cordyceps were considered a type of mushroom that consumers are very interested in. According to the latest forecasts, the demand for natural Cordyceps was much higher but natural production was limited, leading to even higher

prices. Moreover, the natural yield of Cordyceps was insufficient. Therefore, it was an important opportunity to do business of cultivating Cordyceps with bioactive compounds equivalent or higher than natural. According to market research, most of the respondents were aware of Cordyceps and were interested in purchasing new brands of Cordyceps through dealers and e-commerce.

IV. RESEARCH METHODS

Population and sample

In research and development of marketing strategies of Cordyceps *militaris* entrepreneur in consumers of working age groups in Phra Nakhon Si Ayutthaya Province was a characteristic of applied research. The population and sample could be divided into two groups:

1. 400 consumers who have purchased Cordyceps *militaris* products using Accidental Sampling method, and set the samples as shown in Yamane's table at 95% confidence level and 0.05 error.

2. 20 Cordyceps *militaris* entrepreneurs using Purposive Sampling method. Entrepreneur was constantly selected and willing to participate in research to provide realistic insights into all areas.

Data Collection Tools

This research study on the development of marketing strategies of Cordyceps *militaris* entrepreneurs among working age consumers in Phra Nakhon Si Ayutthaya Province was an applied research. The data collection tools for this research were questionnaires and two interview forms. Each set of questions is divided into parts as follows:

Set 1: The questionnaire for consumers using Cordyceps *militaris* products consists of 3 parts:

Part 1: Personal information including gender, age, education, occupation, average monthly income.

Part 2: Consumers' buying behaviors of Cordyceps *militaris* in working age

Part 3: Factors Influencing the Purchase Decision of Cordyceps *militaris* Products

Set 2: The interview form for the operators consists of 3 parts:

Part 1: General information of the Cordyceps *militaris* entrepreneurs in Phra Nakhon Si Ayutthaya Province

Part 2: Weaknesses, Strengths, Opportunities and Threat Analysis of Cordyceps *militaris* entrepreneurs in Phra Nakhon Si Ayutthaya Province

Part 3: Marketing System of Cordyceps *militaris* entrepreneur in Phra Nakhon Si Ayutthaya Province

The steps of the research are shown in Figure 1.



Figure 1 Research process

V. RESEARCH RESULTS

Set 1: Results of market analysis of Cordyceps *militaris* products

The market system of Cordyceps *militaris* products was divided into 2 groups: The first group started by raising Cordyceps *militaris* and then drying and packing them for their own sale by making their own brand. The second group was the receipt of packaged products and applying their own branding for both direct and indirect distribution systems as shown in Figure 2.

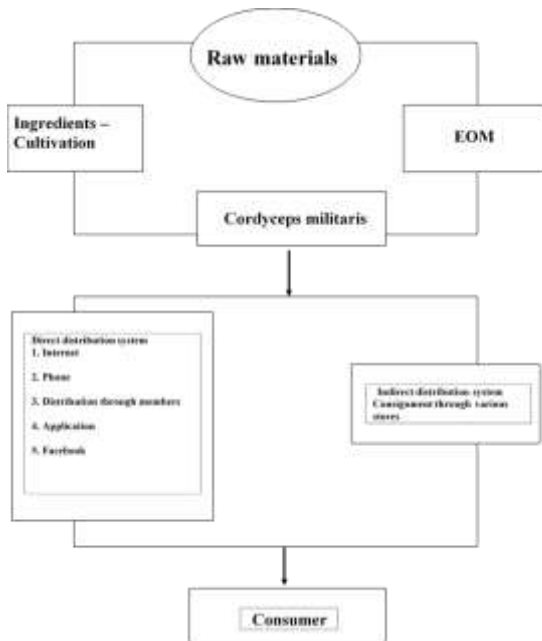


Figure 2: Market System of Cordyceps Products

Set 2: Purchasing behavior and factors influencing the purchase decision of the Cordyceps militaris products among working-age consumers

Part 1: Consumer Personal Data

Most of the respondents were female (78.7%), aged 31-40 years (42.4%), bachelor's degree (57.3%), civil servant (36.0%), and average monthly income of more than 18,000 baht (41.4%).

Part 2: Buying Behavior of Cordyceps Products

According to research, most consumers prefer to buy Cordyceps capsules (41.5 percent), more than 1 year of consumption experience (49.5 percent), purchase for own consumption (90.78 percent), own purchase decision (68.7 percent), online shopping (63.8 percent), purchases of more than 500 baht per time (84.5%), 1 purchase per month (50.4 percent), information about products via the Internet (41.18%), satisfaction with cordyceps products was at a good level (58.9 percent).

Part 3: Factors influencing the purchase of Cordyceps militaris products

No.1: Product Factor Consumers were concerned about safety from using the product (Mean=3.94), quality accreditation from a reliable institute or agency (Mean=3.91), date of manufacture and expiration date, (Mean=3.87), and identification of indications, restrictions and product ingredients (Mean=3.86).

No. 2: Price Factor Consumers focused on price and quality (Mean=3.85), special discount when buying in bulk (Mean=3.63), and a wide range of prices (Mean=3.56).

No. 3: Distribution Channel Factors Consumers focused on stores that offer multiple shopping options such as Facebook, telephone, internet (Mean=3.86), location of stores that are convenient to travel to buy (Mean=3.66), and stores that sell products that meet all the needs (Mean=3.64).

No. 4: promotion Consumers were concerned about good product knowledge and product recommendations by staff (Mean=3.65), and product warranty or product replacement (Mean=3.59).

Part 4: Comparison of personal factors and factors that influence the purchasing decision of Cordyceps militaris consumers.

From the research, it was found that the differences in education, occupation and income of consumers on purchasing decisions were not significantly different at the .05 level and the age difference of consumers on price factors, distribution channels and promotions was not significantly different at the .05 level.

Different age among consumers affected product factors was statistically different at the .05 level. They were divided into two groups: people aged 21-30 and over 41 focused more on product factors than those 21-30 years old, consumers under 20 were more focused on product variety than those 21-30 years old, consumers over the age of 41 pay more attention to the brand of a product than those aged 21-30 and aged 31-40. Consumers under 20 and over 41 pay more attention to product packaging than those aged 31-40, consumers aged 21-30 and over 41 prioritize the quality assurance of a trusted institution or agency over those aged 31-40.

The results of the analysis of strengths, weaknesses, opportunities and threats of Cordyceps production (SWOT Analysis) were shown in Figure 3.

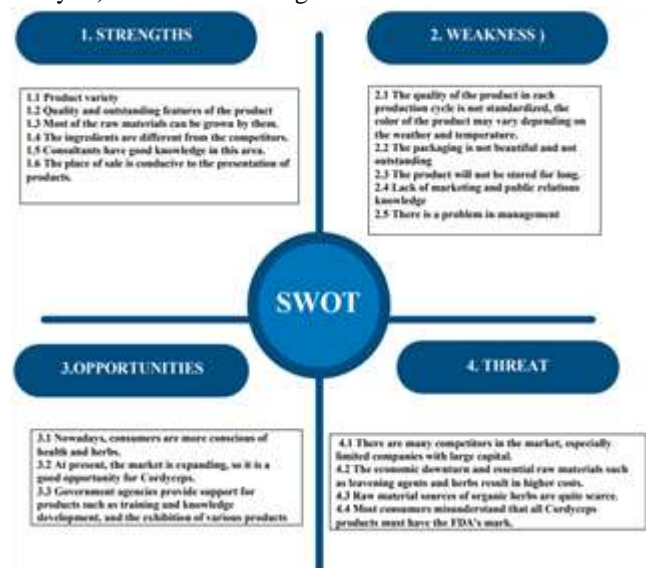


Figure 3 SWOT Analysis

The main target groups were consumers with good income, females aged 30-50 years, bachelor's degree, occupation of civil servants or government employees, people with good social standing, health and beauty concerns, and a passion for herbs.

Secondary target groups were nursing homes and health food distribution groups such as herbal medicine stores. It could then be developed into a new market for community enterprises.

Marketing mix strategy

Product strategy Manufacturers must focus on the quality of the production of products based on wisdom. The distinctive features depend on the properties of each herb. Products are diversified, but packaging should be improved and developed.

Pricing strategy A cost-oriented strategy should be used close to that of competitors. At the same time, the principle of pricing should be consistent with the quality and variety of prices.

Distribution channel strategy There are two distribution channels: direct, which is self-selling at the point of sale, Facebook, phone, internet, group members, and finding markets through direct contact with healthcare facilities and individual businesses. Indirect distribution channels: distribution through the platform and consignment through various stores.

Promotion strategy Entrepreneurs should choose salespeople or admins who are witty, skillful and good sales techniques along with preparing various advertising materials such as leaflets to provide information about the product, its benefits and properties. Point of purchase should be beautiful and attractive. On Facebook, promotions should be organized for customers, business groups and resellers along with freebies and special discounts on bulk purchases and sample products. Direct marketing include telemarketing Catalog marketing for selling products to business customers.

VI. DISCUSSIONS

The market system of consumer's Cordyceps militaris products focused on people of working age in Phra Nakhon Si Ayutthaya Province. Most of them started with their own cultivation, but there were some ingredients that needed to be purchased from outside the area. Distribution systems were divided into two types: 1. Direct distribution system included Facebook, phone calls and sales through group members. 2. Indirect distribution system was operated by consignment through stores which correspond to Thirathana Insee (2018). Consumer purchasing behavior is consistent with the concept of Schiffman, L. G. & Kanuk, L. L (2010) in the sense that

most consumers' purchasing decisions are self-determination, the period of use of the product was 1 year or more and the average cost of purchasing the product per month was more than 500 baht.

The most important factor influencing purchasing decisions was product safety, followed by the price which was suitable for the quality, in line with Watcharaporn Vejkul (2018), location of the store, the ease of purchase and the sales staff have good knowledge of the product, consistent with Jintana Onla (2015), Watcharaporn Wechakul (2018). The product factor had the greatest influence on the decision, followed by the price factor, distribution channel and promotion.

The difference in age of consumers on product factors was statistically significant at the .05 level. Consumers under the age of 20 tended to focus on product variety. Consumers over 41 years of age tended to value the brand of a product. Consumers under 20 and over 41 tended to focus on quality assurance from institutions or agencies. The results of such research lead to the development of marketing strategies of Cordyceps entrepreneurs among working-age consumers in Phra Nakhon Si Ayutthaya Province. Most of the samples focused on product quality, quality assurance from institutions and agencies, product variety and packaging aesthetics.

VII. CONCLUSION

The market system of consumer's Cordyceps militaris products focused on people of working age in Phra Nakhon Si Ayutthaya Province. Most of them started with their own cultivation, but there were some ingredients that needed to be purchased from outside the area. Distribution systems were divided into two types: 1. Direct distribution system included Facebook, phone calls and sales through group members. 2. Indirect distribution system was operated by consignment through stores.

Buying behavior of consumers that had been used for more than 1 year, mostly for own use. The purchase cost was more than 500 baht per time. The purchase frequency was 1 month at a time. The most important factor influencing purchasing decisions was product safety (Mean=3.94), followed by quality accreditation from a reliable institute or agency (Mean=3.91), reasonable price with quality (Mean=3.85), bulk purchase discount (Mean=3.63), ease of purchase (Mean=3.66), and good knowledge of salespeople (Mean=3.65).

The main target group of herbal products of community enterprises was female consumers, age 30-50 years, good income and bachelor's degree. Secondary target groups were hospitals and health food distribution groups. Product

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strategy focused on producing quality and standard products, outstanding features, variety, and aesthetics of packaging. A cost-oriented pricing strategy was used along with pricing that was appropriate for the quality of the product. The original distribution channel must be maintained and try to expand more distribution channels. There should be an integrated marketing communication strategy to make consumers know and trust the product and create a consumer experience.

ACKNOWLEDGEMENT

1) Entrepreneurs should create unique products, differentiation, perceived benefits, and adding stories about the origin of each product and its actual value.

2) In the product strategy of Cordyceps among working age groups in Phra Nakhon Si Ayutthaya Province, entrepreneurs must ensure product safety, packaging safety and standard certification.

3) In the strategy of developing marketing strategies, the Cordyceps operators in the working age group in Phra Nakhon Si Ayutthaya Province should study the health care consumers in order to expand the market and increase opportunities for those less than 20 years old.

4) There should be a group of community enterprises and a network of Cordyceps products in Phra Nakhon Si Ayutthaya Province to help and support the operation.

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Regenerative design of green hotel landscape in northern Thailand

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Abstract— Tourism was socio-economic progress of Thailand. The sustainable tourism development was a main sector which potently raised Thai economy. The local hospitalities also had the big roles in tourist attractions and circular economies. In the other hand, they destroyed the natural resources and polluted to the environments. The local hotel developments were the important issues to be considered in these situations with environmental crises, disasters and Covid-19 pandemics. According that the local hotel research in northern Thailand was a good example of the local hotel development especially cultural hotel landscape development. This fascinatingly enriched the quality tourist attractions with Thai northern cultures or Lanna cultures and universal designs. Therefore, the research objectives were the regenerative design for the prototype of green Thai northern hotel landscape in the sustainable tourism development, permacultural promotion for young hotel entrepreneurs and local tourisms with strengthen resiliences. The research methods were the key finding of the regenerative design for green Thai northern hotel landscape by essential hotel criteria study and Phayao university hotel case study. They presented the guidelines of cultural hotel landscape developments among tourism crises. The resilient Phayao university hotel was a sustainable prototype of local hotels as a famous hotel school in the northern region. The promotions of the regenerative hotel designs helped local hotel businesses and tourisms survived the crises. These sustainably brought all touristic community participations to stimulate Thai local economies by hospitality industries and products including the creative activities of the hotel images promoted Thai tourisms globally

Keywords— Cultural hotel landscape, Green hospitality, Hotel resilience, Regenerative design

I. INTRODUCTION

In the environmental crises, they impacted to the hotel businesses and tourisms extensively. The most impact of environmental crises was Covid-19 pandemic at the moment. This was the tourism disaster around the world. The number of tourists were dramatically decreased including the tourism activities. Phayao tourism and the local hotels got this impact as well. In these reasons, the tourism organizations helped each other to find the way out of this tourism crisis. A strategy to recover the hotel businesses was the hotel marketing. The hotel reimage could more attract the tourists in new normal lifestyles. Putting the idea of regenerative design to hotel landscape was a hotel reimage by using green concept in the environmental conservation which was the global trend recently. It was the framework to key finding of the regenerative design for green Thai northern hotel landscape and the application to the case study. Therefore, this research was about how to apply the regenerative design through the case study.

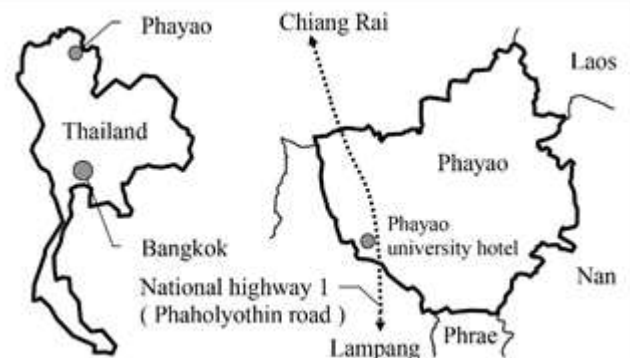


Fig.1 The location of Phayao university hotel

To case study, Phayao university hotel or “Reun Aeung Kam” was a famous hotel school in the northern region. It located at University of Phayao. It established since 2005 and redeveloped to complete hotel school in 2008. It was a large hotel containing 154 guest rooms. It offered the short-term and long-term services. In the present, it got the impact of Covid-19 pandemic and the hotel environments began to decline. It was perfect to the idea of regenerative design for green hotel landscape with the local cultural preservations. In expectation, the resilient Phayao university hotel could be a sustainable prototype of local hotels in the northern region. By these promotions of the regenerative hotel designs could

help the local hotel businesses and tourism survived the crises.

II. RESEARCH OBJECTIVES

1. Regenerative design for the prototype of green hotel landscape in northern Thailand's sustainable tourism development.
2. Permacultural promotion for young hotel entrepreneurs and local tourism.
3. Strengthen resilience in local hotels.

III. LITERATURE REVIEWS

The research literature reviews were following ;

Hotel - An accommodation established for business purposes of providing temporary accommodation service for travelers or any other person in exchange for compensation [1].

Building Resilience - The improving and maintaining operational and physical performances of natural and manmade hazardous events can impose a devastating cost upon society. The four building resilience features are simply called the 4Rs.

1. Robustness - The ability to maintain critical operations and functions in the face of crisis.
2. Resourcefulness - The ability to skillfully prepare for, respond to and manage a crisis or disruption as it unfolds.
3. Rapid recovery - The ability to return to and/or reconstitute normal operations as quickly and efficiently as possible after a disruption.
4. Redundancy - There are back-up resources to support the originals in case of failure that should also be considered when planning for resilience [2].

Circular economy - An industrial system that is restorative or regenerative by intention and design. It replaces the end-of-life concept with restoration, shifts towards the use of renewable energy, eliminates the use of toxic chemicals, which impair reuse and return to the biosphere, and aims for the elimination of waste through the superior design of materials, products, systems and business models [3].

Regenerative design - The idea of creating a building that mimics the restorative aspects found in nature to bring about a positive impact on the overall environment. The main aspects incorporate and build upon existing paradigms with triple net zero (energy, water and waste), carbon balancing, health and wellness design, materials transparency, resiliency and social equity on a continuous basis [4].

Universal design - The design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design. The 7 Principles of Universal Design were 1) Equitable Use, 2) Flexibility in Use, 3) Simple and Intuitive Use, 4) Perceptible

Information, 5) Tolerance for Error, 6) Low Physical Effort, and 7) Size and Space for Approach and Use [5].

IV. RESEARCH METHODS

1. Key finding of regenerative design for green hotel landscape in northern Thailand by essential hotel criteria study and Phayao university hotel case study.
2. Data analysis and synthesis for research conclusion.
3. Research public relation.

V. RESEARCH RESULTS

Phayao University Hotel case study

This research used the universal design criteria for guiding the ideas of regenerative design. After case study site survey, there were many points to be regenerated by design for green landscape as follows :

1. Accessibility

- Hotel user
According to the hotel location, it was in the university and far from the tourist attractions. Therefore, the hotel users were almost university visitors. To the city tourists, they checked in at the hotels in the Phayao city center or outside the university. These limited the hotel users.
- Physical hotel landscape
The hotel located up to the hill and apart from the university building groups. The hotel surrounding was the dry dipterocarp forest. These made the hotel roads steeped and endangered to users. By cars, there were not guard rails at the road edges for protecting the car accidents. On foot, the bushes and grasses were overgrown. The venoms could be there and endanger to the road users. The pedestrian lightings and wayfinding signages were not enough. The building entrance had no functions for the disabilities. The bus stops

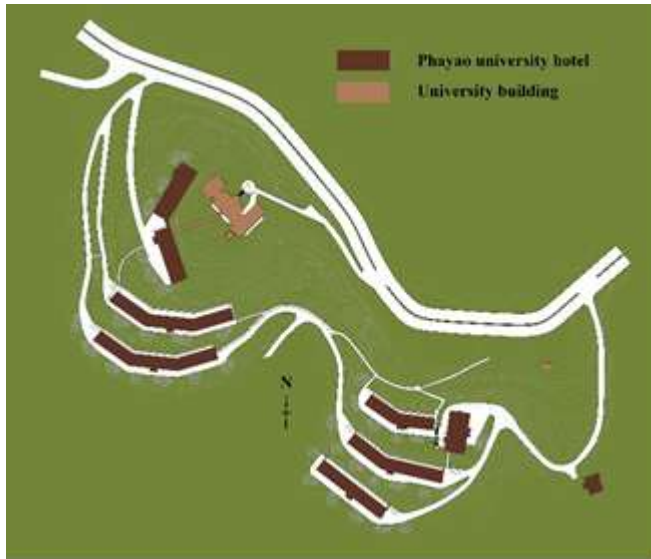


Fig.2 The buildings of Phayao university hotel



Fig.3 The lobby building of Phayao university hotel



Fig.4 The guest room building of Phayao university hotel

were also far from the hotel. Thus, the best way to get to this hotel was by private cars.

2. Parking

The car parks were not enough, had no spaces for the bicycles and functions for the disabilities.

3. Hotel park

There were rarely sitting areas in the hotel park and at the view points, the guard rails at the edges of the view points including the notable landmarks in the hotel landscape. Moreover, the walkways were dark and dangerous at night.

4. Recreation area

The hotel buildings were linear along with the site contours and dispersed from each other as resort. Hence, the recreation areas were only the front terraces of the buildings for meeting and the visitors could use the university facilities such as libraries, co-working spaces, swimming pool or gymnasium. But these facilities were in the university building groups and far from the hotel.

5. Biodiversity

Plant

The hotel location was in the dry dipterocarp forest which was most founded in northern Thailand. It was the deciduous forest. The example plants in this forest were Gurjan trees, Siamese Sal trees, Burmese Sal trees, Indochinese Keruing trees and Hairy Keruing trees. To the hotel architectural areas, they were decorated by the garden trees.

Animal

There were not big wildlife animals in the hotel forest. There were only small wildlife animals and venoms because the forest was in the community area.

6. Energy

The main energy of this hotel was the electricity from Provincial Electricity Authority Mae Ka Sub Branch.

7. Water management

This hotel had the water supply the same as the university by the water supply of university reservoirs. In drought, the hotel always has a problem from the water shortage because of the droughty reservoirs.

8. Waste management

The hotel garbage was eliminated at university garbage center with garbage separation and the hotel wastewater treatment was also the same system as the university by septic tanks.

9. Hotel resilience

Covid-19 pandemic

It affected to the reduced hotel clients for check-ins and the hotel management for new normal. These dramatically caused the hotel economic problem. Therefore, the hotel had to be resilient to this crisis urgently.

Wildfire

Many times of wildfires were occurred at the university forests by natural and man-made disasters especially in dry seasons since December until March. In this period, the trees started to change colors and shed leaves. These made the forest floors covered by the dry leaves. They were the good fuels for starting wildfires.

Landslide

According to the hotel location, the soil textures were sandy loams and laterites. They didn't much absorb water. Thus, the hill was sometime occurred the landslides in rainy seasons.

Storm

If the storms passed through the university area, they would have the heavy rains and the strong winds. These could damage the trees and the unstable buildings around the university. Although the hotel structures were strong but the broken trees could damage them as well.

Earthquake

The university was not in the major fault area. When the earthquakes occurred at the major fault areas near the university, people would know the tremors. However, the earthquakes were able to effect to the landslides at the hotel hill.

VI. DISCUSSIONS

The regenerative design summary of Phayao University Hotel in landscape was following ;

1. Green landscape

The green hotel landscape criteria referred to Thai's Rating of Energy and Environmental Sustainability for Preparation of New Building Construction & Major Renovation (TREES-PRE NC, 2017) by Thai Green Building Institute (TGBI) for energy efficiencies [6].

- 1) Avoid inappropriate construction site.
- 2) Reduce negative impact to green field areas.
- 3) Locate project on the developed land.
- 4) Reduce using private cars.
- 5) Ecological Open Space not less than 25% of the building footprint or 20% of the land area.
- 6) Plant 1 big tree per 100 m² of open space (do not relocate natural big trees other sites).

7) Use local or native plants appropriately.

8) Infiltration of storm water and flooding prevention.

9) Green roof or vertical garden.

10) Hardscape area received direct solar radiation not more than 50% of the total hardscape area.

11) Place big native trees that can shade the building efficiently and do not damage the building at the Western, Eastern, and Southern sides of the building.

12) Water conservation.

13) Energy efficiency.

14) Material resources.

15) Environmental protection.

In case study analysis, Phayao University Hotel almost passed the landscape criteria of TREES-PRE NC 2017. According that it located at the ecological environment and was built by building regulation concern except the new technologies for energy efficiencies in recent years. Therefore, the suggestion of landscape hotel regenerative design involved with energy efficiencies and green modern lifestyle concept.

1.1. New building construction and major renovation

To the hotel location, the new building construction and major renovation should avoid the waterways from the hill tops, the areas within 15 meters from natural water resources, the high ecological valuable areas and the unstable soil structures.

1.2. Reduce using private cars

Walking, cycling, public transportation using, eco or electric car using and carpool promotions in the university for energy savings. The bus stops should be located within 500 meters from the main hotel building entrance. Providing the bicycle parking areas and shower rooms within 80 meters from the main hotel building entrances including the attracting walkways for walkers and joggers.

1.3. Green space for recreation

Preparing the ecological open spaces as green spaces for recreations to promote the green modern lifestyle concept around the hotel areas. Green spaces were the places for relaxing, meeting, sharing or doing activities in various styles such as open spaces, terraces, balconies, playgrounds, gardens, parks, vertical or roof gardens, etc. These areas presented the hotel image in wellness as healthy hotel. The special green spaces were health gardens and park. They were decorated by the Thai northern herbal plants with beautiful color flowers and good scents. All plants would show their names and properties by attached signs as learning place. To the roof tops of some hotel buildings, they could be adapted the open spaces to roof gardens.

1.4. Water conservation

There were the reservoirs in the university but not at the hotel. The good water conservations were water reserve tank addition at the hotel and pond design for constructed wetland wastewater treatment system at the lowest hotel area.

1.5. Energy efficiency

Using passive design in the basic orientation of building, winter and summer sun position, choosing trees and natural energies for energy efficiencies. Especially, the solar energy was popular in landscape lighting.

1.6. Material resources

Selecting the regional identity materials with the circular processes in landscape works for supporting the local economy, saving construction costs and energies. Selecting materials with water permeabilities were perfect to water drains and flood protections. To the heat and glare protections, the light material colors had the heat reflections higher than the dark material colors. Avoiding the glazed material surfaces for glare protections. Moreover, the landscape material consideration should also concern to the costs of human health and environmental impacts.

1.7. Environmental protection

In the waste management, preparing more recycling collection areas to support the circular processes were reduced, reused and recycled garbage following the circular economy. To wastewater treatment, using natural treatment and septic tanks together before letting treated waters into the public watercourses. About the air pollution, locating the condensing units or cooling towers of air conditioning systems at the locations which not affected to the environments around the buildings.

2. Universal design

This part referred to the ministerial regulation of prescribing accessible facilities for persons with disabilities and the elderly B.E. 2548 (2005) in hotel landscape universal design [7].

2.1. Road and walkway

1) Guard rail

Installing the guard rails of the roads and walkways at the dangerous points. The guard rails should be mounted at 800 to 900 mm. above the floor.

2) Road and walkway widths

The hotel road should be 2,500 mm. minimum in width for one-way road and 5,000 mm. minimum in width for two-way road with non-slippery surface materials.

The hotel walkways should be 1,500 mm. minimum in width.

The walkway surface materials should be non-slippery.

3) Ramp

The ramps should construct in front of the buildings and at service areas with the difference between floor levels exceeded 20 mm. They should be 1,500 mm. minimum in width with non-slippery surface materials. The maximum slope of a ramp should be 1:12 and the maximum length of each run should be 6,000 mm. If the ramp was greater than



Fig.5 The regenerative design of the main hotel building [15]



Fig.6 The regenerative design of the hotel Café [15]



Fig.7 The regenerative design of the guest room building [15]



Fig.8 The regenerative design of the hotel restaurant [15] 6,000 mm. in length, a landing of 1,500 mm. minimum in width should be provided between each run. For ramp which was 2,500 mm. or more in length, handrails should be mounted at 800 to 900 mm. above the floor on both sides.

4)Lighting

The hotel street lighting installation should concern to the street lighting standard by Council of Engineers Thailand in lighting specifications. The lightings with energy efficiency qualifications were the good choices such as LED (Light Emitting Diode) and solar cell lightings. The street lighting height should be 7.5-12 meters and the distance between the lighting poles depended on the distance of 15° beam angle from the lighting center for 50 percentages of illuminance. This could apply to the walkway lightings but the lower heights for human scales [8].

2.2.Parking

1)Car parking

By hotel building law, the hotel should provide car parking at a minimum of one parking space for every 30 square meters of lobby area or fraction thereof, and at a minimum ratio of one parking space for every 40 square meters of commercial area or fraction thereof. Car parking lot should be rectangular with minimum dimension of 2,400 mm. by 5,000 mm [9].

- parallel road parking or 30° angle parking maximum should leave 3.5-meter road width minimum.
- 30°- 60° angle parking should leave 5.5-meter road width minimum.
- 60°- 90° angle parking should leave 6-meter road width minimum.

Moreover, providing bus parking would be good for visitor groups including the shower rooms and waiting areas.

From case study car parking, the hotel lobby areas were 1,960 square meters. Hence, the hotel should prepare car parking lots for 65 lots minimum. To bus parking calculation, the number of maximum visitors per day were 154 persons. Thus, the bus parking lots were 4 lots by a bus per 40 persons. Bus

parking lot should be rectangular with minimum dimension of 3,000 mm. by 12,000 mm. with minimum 14-meter reversed car space [10].

2)Bicycle parking

Providing bicycle parking not less than 5% of the maximum of regular building occupants and transient building occupants such as guests. The bicycle parking areas should be located not more than 80 meters from the main hotel building entrances. To case study, the number of bicycle parking lots were 8 lots minimum [6].

3)Disability parking

By Ministerial regulation of prescribing accessible facilities for persons with disabilities and the elderly, there should be disability parking at the hotel car parking. If there were 10 parking lots or more but less than 50 lots, at least 1 accessible parking lot was required. If there were 101 parking lots or more, at least 2 accessible parking lots were required, and one additional accessible parking lot was required for every subsequent 100 lots. For any part thereof, if greater than 50 lots, it should be deemed as 100 lots. Accessible parking should be rectangular with minimum dimension of 2,400 mm. by 6,000 mm. and a clear space beside the parking lot with the size of at least 1,000 mm. wide along the length of the lot. The clear space must be smooth surface, level to the lot, close location to the entrance of hotel building and not parallel to roadway. It must paint the symbol of access with dimension of at least 900 mm. by 900 mm. on the designated lot adjacent to driveway. To case study, the number of disability parking lot was at least 1 lot [7].

2.3.Hotel park and recreation area

The universal design of hotel park and recreation area involved with the green landscape criteria but it focused on design for all or all persons without physical conditions. The



Fig.9 “Health garden”, the green space for recreation



Fig.10 Health garden

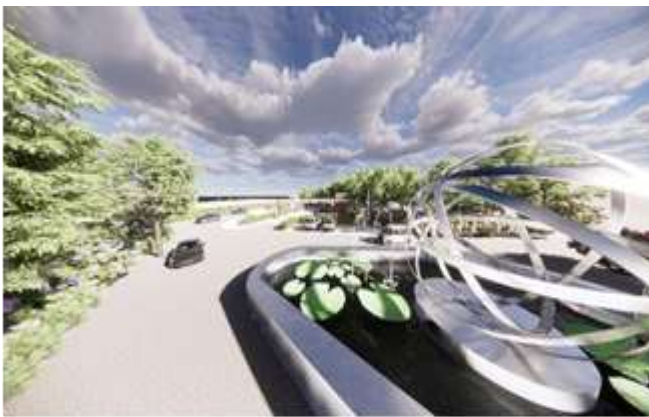


Fig.11 The health garden and the parking area



Fig.12 The walkway at night

disability and elderly persons could visit this hotel park with the special functions such as handrails, ramps, wayfinding signages, tactile paving units and braille signages. For green and healthy concepts, the hotel should have the health gardens and playgrounds in the hotel park. The designs concerned to the play setting criteria of universal design following ;

- 1) Integrating accessible play equipment with the rest of the play setting would encourage interaction across all ability levels.
- 2) Providing an accessible route that connected every activity area and every accessible play component in the play setting.
- 3) Accessing onto and off equipment could be provided with landforms, ramps, transfer platforms or other appropriate methods of access.
- 4) Making portions of gathering places accessible to promote social interaction including accessible seating such as benches without backrests and arm supports, so people of varying abilities could sit together.
- 5) Concerning safety guidelines which outline important parameters such as head entrapments, safety surfacing and use zones [11].

2.4. Sign

For case study, the hotel should more install the wayfinding signages and important signs such as building names, plant names, warning signs, the exits or hotel symbols in Thai and international languages especially English language. They should be intact, clearly visible and accessible for all.

- Accessible facility sign
 - 1) Symbol of access.
 - 2) Directional signage to accessible facilities.
 - 3) Symbol or text identifying type of accessible facilities.
 - 4) Accessible facility signs should be in white on blue background or blue on white background.
 - 5) Accessible facility signs must be clear and visible. They should be posted where it did not cause confusion and equipped with extra lighting day and night [7].

3. Sense of place

In hospitality trend, honoring a sense of place was an integral regenerative practice for hospitality as it allowed the travelers to be fully immersed in the story of its history, touching upon every aspect of the guest experiences. The hotel scope design to present the sense of place brought the aesthetic value to the hotel landscape by hotel essence, history of place, natural aspiration, community inclusion and partnership [12]. For case study sense of place ;

Hotel landscape sense of place

The design concept should present the reflection of and respect for the northern culture and ecology to the visitor impression. The Lanna hill landscape would make this hotel distinctive from the others with open views to the university valley and linear architectures among the forest. Therefore, the landscape regenerative design should decorate with the northern plants and Lanna cultural elements such as signs, landscape lightings, textures, materials and park facilities.

Hotel Essence

The essence of the Phayao university hotel was the local educational hotel. All hotel areas could be learning places for the hotel professions and the visitors. The hotel could be a hub of local wisdoms in hospitality. By all hotel products and services would be designed with the Lanna cultural identities and green concepts following the university theme as green university.

History of place

The hotel story from history of place was an idea for hotel image. In the example, this hotel used the orchid names for the hotel building names. To *Vanda coerulea*, commonly known as blue orchid was the symbol flower of Phayao university and its color was the university color. In this reason, a building of hotel building group named "Fahmui" in Thai or *Vanda coerulea*. However, this orchid was rare and valuable. It was only found in the northern mountains. It should more design in the landscape hotel story such as the orchid house, outdoor decoration and landmark for learning source.

Natural aspiration

From history of place, there were many natural aspirations to be the landscape hotel story. In the another example, Green peafowl was a peafowl species native to the tropical forests of Southeast Asia and Phayao. It was found at Wiang lo Wildlife Sanctuary in Phayao. It became a tourism mascot of Phayao. Therefore, the Green peafowl sculptures could be the amazing landscape hotel story from natural aspiration.

Community inclusion and partnership

According to a hub of local wisdoms in hospitality, the local community involvements were essential to hotel activities such as tour programs to the tourist communities, hotel public relations, knowledge exchanges for new hotel innovations of products and services. These could raise the local economies by cooperation between government and private sectors in tourism.

4. Hotel resilience

4.1. Covid-19 pandemic

In Thailand, the cooperation between the Ministry of Tourism and Sports, the Tourism Authority of Thailand, the Ministry of Public Health, government and private sectors involved in the tourism industry to improve the hotel standards and sanitation measures for preventing the spread of Covid-19. The passed hotels would receive the safety and health administration (SHA) certificates [13]. Therefore, the Covid-19 landscape hotel resilience followed the SHA criteria in the new normal lifestyle.

The Covid-19 landscape hotel resilience

1) Provide one way access for service recipients. In the event that there are multiple entrances and exits, there must be a screening point for every route.

2) Take temperature of employees and service recipients at screening points and make a mark for those who pass the screening (If the temperature is higher than 37.5 degrees Celsius, the person must stop working or using services and go to a doctor).

3) Provide wash basins with soaps and waters or alcohol gels adequately.

4) Provide the waiting area and have people maintain at least 1 meter distance to each other.

5) Place the antiseptic pads on the way up or the building entrance.

6) Clean public facilities at least every 2 hours, such as door knobs, door handles, handrails, benches, playground equipment and elevators.

7) There are appropriate disposal of waste, toilet paper or used sanitary masks.

8) Limit the number of service recipients in an appropriate proportion to prevent the spreading of virus.

9) Clear directions should be provided for accessing the service, such as lines or colored spots.

10) Develop new technologies in hotels to help reduce the risk of exposure, such as using QR codes instead of using key cards.

11) Communicate, give knowledge, suggestions in various channels about Covid-19 to reduce the risk of spreading Covid-19 such as providing guideline on the notice board.

4.2. Wildfire

For case study wildfire protection, first the hotel should maintain the forest floor without fallen leaves to be the fuels. The fallen leaves could be useful for composts, leaf molds, hotel artworks and products. Second the hotel should specially monitor to the wildfires in dry seasons since December until March. The last one, making the firebreaks around the hotel buildings by architecture setback considerations at least 3 meters from the moist forest and 6-8 meters from the trees in windy areas without fuel materials. These could put the landscape design to be the firebreaks such as the watercourses, gutters, outdoor spaces and hardscapes [14].

4.3. Landslide

The best way to landslide mitigation in this hotel area was surface erosion control by green methods. First Geomats were anti-eroding biomats or bionets that were purpose-made synthetic products for the protection and grassing of slopes subject to surface wash by containment and reinforcement of

the surficial ground. The last one, Brushwood mats made of vegetable material to be covered with infill soil such as willow branches. They were woven to form a barrier against the downward drag of the material eroded by free water on the surface.

4.4. Storm

Planting the trees with the strong roots and branches around the hotel buildings for shading and strong wind protection including always maintaining the trees in the good shapes and forms. To the architecture setbacks from the trees, they could be applied to the wildfire protection.

4.5. Earthquake

By the hotel geography, it was hard to occur the hazardous earthquakes in this area. However, the chances of earthquake disaster were the landslides and the building collapses. To the building collapsed protection, the hotel buildings should be stable shapes and forms. The hotel structures could perfectly stand for tension and sheer forces such as reinforced concrete, wood and steel structures. If there were the joints at the building foundations, they would thoroughly stand for shaking by the earthquakes.

VII. CONCLUSION

The architectural design values of regenerative design for green hotel landscape were concluded in social, environmental, traditional, gender-based, economic and novel design values. In social design value, it promoted the strong hotel image to public and led the local communities to sustainable developments by all sector cooperation. In environmental design value, the green concepts helped the hotels succeeded in the environmental conservations. In traditional design value, it was the local cultural promotions through tourism and the local cultural conservations for new generations. In gender-based design value, it was the design for all without physical conditions. It was regenerated by universal design consideration. Hence, everyone has the equal social role in the hotel areas. In economic design value, the circular economic idea was applied to the hotel businesses with green concepts. It involved in raising the local economies and environmental concerns. To the last one, the novel design value was the creativities of new hotel innovations in products and services. These led the local hotels to the international reputations for promoting Thai tourism globally.

The regenerative design checklist of green hotel landscape	
Subject	Regenerative design
1. Green landscape	1) New building construction and major renovation 2) Reduce using private cars 3) Green space for recreation 4) Water conservation 5) Energy efficiency 6) Material resources 7) Environmental protection
2. Universal design	
2.1 Road and walkway	1) Guard rail 2) Road and walkway widths 3) Ramp 4) Lighting
2.2 Parking	1) Car parking 2) Bicycle parking 3) Disability parking
2.3 Hotel park and recreation	1) Universal design in public space 2) Concerning safety guideline
2.4 Sign	1) International sign 2) Accessible facility sign
3. Sense of place	1) Hotel landscape sense of place 2) Hotel essence 3) History of place 4) Natural aspiration 5) Community inclusion and partnership
4. Hotel resilience	1) Covid-19 pandemic 2) Wildfire 3) Landslide 4) Storm 5) Earthquake

Table 1 The regenerative design checklist of green hotel landscape

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Pilot Research on Enhancing The Quality of Life And Increasing The Capability to Engage in Sustainable Agriculture for Disabled People in The Case Study : Mueang Mae Jo Municipality, San Sai District, Chiang Mai Province

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Abstract— The purpose of this study was to study the context and explore the quality of life of people with disabilities in order to improve the quality of life and increase the capacity for sustainable agricultural occupation of the disabled, to analyze problems and ways to improve the quality of life and increase the capacity for sustainable agricultural occupation of people with disabilities and to create a model for improving the quality of life and increasing the capacity for sustainable agricultural occupation of the disabled in Mae Jo Municipality, San Sai District, Chiang Mai Province. Research findings were identified to create a model to improve the quality of life and increase the capacity for sustainable agricultural occupation of the disabled. There were 3 branches of training and career development in agriculture: hydroponic vegetable cultivation, Bhutan fairy mushroom cultivation and cricket cultivation. The development process was divided into three stages: 1) The pre-training phase was a data survey of persons with disabilities to study the information of persons with disabilities in terms of quality of life and self-esteem. 2) Training session consisted of course preparation, training arrangements, assessment and monitoring of trainees. 3) The post-training phase was a period of study of problems, obstacles, and guidelines for improving the quality of life and increasing the capacity for agricultural occupation of the disabled after the training. Training outcomes were divided into four key approaches: 4.1) Knowledge building was the first factor in the transfer of important things including learning, coaching and motivation. This created a body of knowledge that consists of knowledge, skills and attitudes. The relationship between knowledge, attitudes and skills affected the development of disabled people who attend training, help them adapt to change or controlling changes in areas related to career building. 4.2) Empowerment was an incentive for practitioners to have self-confidence in the sense that they are capable of achieving results. It also developed a person's sense of belief in motivation to give practitioners confidence that they were capable of getting the job done. 4.3) It was supported by organizations, networks, agencies and organizations participating in participatory action research activities. 4.4) There was a promotion as a guideline to help the disabled after training and entering into a career with an emphasis on marketing promotion such as setting prices, creating marketing channels and developing products

Keywords— *The Quality of Life, Disabled, Increasing the Capability*

I. INTRODUCTION

According to the past disability survey in Thailand, the proportion of people with disabilities in the country as a whole did not show much change, there were still issues of disparity among people with disabilities in many areas, especially social determinants of health (SDH) for example, education, occupation and income. These factors had a

negative impact on the health of people with disabilities. In this regard, the Health Equity Monitoring Project (HEM-Net) of the International Health Policy Development Agency, the Ministry of Public Health had taken into account the 2002 and 2007 disability survey data. The National Statistical Office therefore studied and analyzed to monitor various situations related to the health of Thai disabled people. Important social health determinants were taken into account in a detailed analysis such as place of residence, gender, education, occupation and status of people with disabilities. Mae Jo

Municipality had a total population of 18,414, categorized as 8,540 males and 9,874 females, and had 9,128 households. There were 332 people with disabilities (Public Registration, Mae Jo Municipality, 2016), which were classified as 1) Persons with visual impairments were divided into 7 males and 4 females. 2) People with hearing impairments were divided into 10 males and 20 females. 3) Persons with physical or mobility disabilities were divided into 56 males and 48 females. 4) People with intellectual or learning disabilities were divided into 25 males and 15 females. 5) People with multiple disabilities were divided into 81 males and 66 females. There were also many services related to helping people with disabilities such as Srisangwan School, Association for the Blind, Huai Kiang Temple, Maejo University and the International Foundation for Persons with Disabilities Northern Branch. Therefore, the agency is the main organization in providing basic education aiming to develop educational potential and rehabilitation of people with disabilities with physical disabilities.

In addition, the researchers found that in Mae Jo municipality, there were various agencies that support people with disabilities in many aspects, but still lacking factors in helping, promoting and coordinating integration in order for the disabled network partners to drive concretely. This resulted in the development of potential and the development of the surrounding environment.

For this reason, the researcher had studied the approach to helping the disabled with a focus on improving the quality of life and increasing the capacity for sustainable agricultural occupation of the disabled. The researcher would like to study the context and quality of life of people with disabilities in Mae Jo Municipality and ways of raising the quality of people with disabilities to have proper occupational potential.

II. RESEARCH OBJECTIVES

1. To study the context and survey the quality of life of people with disabilities in Mae Jo Municipality, San Sai District, Chiang Mai Province.

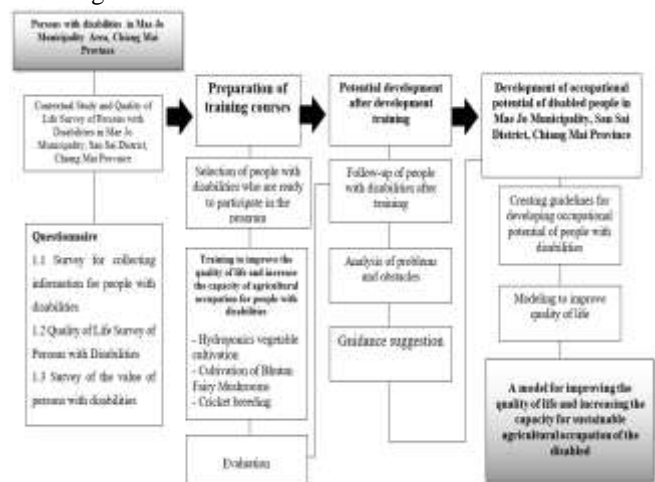
2. To improve the quality of life and increase the capacity of agricultural occupations of people with disabilities sustainably in Mae Jo Municipality, San Sai District, Chiang Mai Province.

3. To analyze problems and ways to improve the quality of life and increase the capacity for sustainable agricultural occupation of the disabled in Mae Jo Municipality, San Sai District, Chiang Mai Province.

4. To create a model for improving the quality of life and increasing the capacity for sustainable agricultural occupation of people with disabilities in Mae Jo Municipality, San Sai District, Chiang Mai Province.

III. LITERATURE REVIEW

In this research, the researcher studied the context and surveyed the quality of life of people with disabilities in Mae Jo Municipality, San Sai District, Chiang Mai Province. In order to create job opportunities for people with disabilities, the International Labor Organization had set international standards for certification on the employment of people with disabilities. In 1983 the World Health Organization adopted a resolution to promulgation of the “Convention on the Rehabilitation of Occupational and Employment Disabilities (Disabled Persons)” (Convention 159). The Convention provided for the protection of persons with disabilities by stating that Member States must prioritize their professional rehabilitation, and then prepared a training course for agricultural careers for the sample that were ready. A person learns in action behavior from the person who understood the response stimulus association. A person would be satisfied with his actions. A person's satisfaction with their behavior was what Skinner calls reinforcement. It could be divided into two types: 1. Positive reinforcement was a person gaining an additional stimulus that increases the person's action-oriented behavior. 2. Negative reinforcement was the removal of a person's unsatisfactory stimuli and increases the person's action-based behavior. Training was a process of human development using reinforcement learning that consists of six interrelated steps: training needs assessment, training development planning, training course creation, training project preparation, training implementation and training evaluation. Thereafter, capacity development was developed after development training using a pilot project in the Participation Action Research (PAR) to create a model for improving the quality of life and increase the capacity for sustainable agricultural occupation of the disabled as shown in the figure



IV. RESEARCH METHODS

1. Location

In this research, the researcher selected an area in Mae Jo Municipality, San Sai District, Chiang Mai Province as the experimental area with a total of 19 communities: Mae Tao Hai Community 1, Mae Tao Hai Community 2, Pa Bong Community, Pa Kham Community, Huai Kiang Community, Mae Jo Community, Cooperative Nikhom Community 1, Cooperative Settlement Community, Mae Jo Mai Community, Thung Muen Noi Community, New Agricultural Community, Cooperative Farm Community, Pa Pa Ha Community, Sri Sahakhon Community, Ling Muen Community, Nong Sai Community, Mae Koo Community, Pattana Sai Kaew Community and Thung Pa Ket Community

2. Population and sample

2.1 The population used in this research was 332 persons with disabilities in Mae Jo Municipality, San Sai District, Chiang Mai Province. The researcher selected a population sample using the Taro Yamane formula (1973:725, cited in Buntham Kitpreedaprut, 1997:71). The sampling error was defined as 0.09 from a population of 332 and a sample size of 90 could be calculated. Voluntary participation in the project was taken into account and a sample of 160 participants was obtained using Simple Random Sampling.

2.2 Interviews with 18 key informants (9 families) were sampled using Purposive Selection: persons with disabilities or their caregivers undergoing training on improving the quality of life and enhancing the capacity for sustainable agricultural occupation of the disabled together with the occupation after the training, merchandising and self-earning.

2.3. Focus Group Discussion with 15 key informants were sampled using Purposive Selection:

2.3.1 Five persons with disabilities were selected using the following selection criteria:

- (1) Use of language and community-based village life in daily life
- (2) Good knowledge and understanding of community culture
- (3) Clarity in listening and speaking
- (4) Not being a person of unsound mind
- (5) Participation in community activities

2.3.2 10 government and private agencies: Local government agencies and the Universal Foundation for Persons with Disabilities and educational agencies and other stakeholders

3. The population was 18,414 consumers in Mae Jo Municipality, San Sai District, Chiang Mai Province. The researcher selected a population sample using the Taro Yamane formula (1973:725, cited in Buntham Kitpreedaprut, 1997:71). The sampling error was defined as 0.09 from a population of 18,414 and a sample size of 392 could be

calculated. Voluntary participation in the project was taken into account and a sample of 400 participants was obtained using Simple Random Sampling.

3. Research tools

The researcher used the questionnaire as the study tool as follows:

1. This study was to survey the quality of life of 160 people with disabilities in Mae Jo Municipality, San Sai District, Chiang Mai Province, divided into 3 parts: Personal data of people with disabilities in Mae Jo Municipality, San Sai District, Chiang Mai Province, survey data on quality of life of people with disabilities and data survey on the value of people with disabilities

2. This study was a survey of product purchasing behavior of 400 people in Mae Jo Municipality, San Sai District, Chiang Mai Province, divided into 3 parts: personal data of the sample group, behavioral data on purchasing products of people in Mae Jo Municipality, San Sai District, Chiang Mai Province and demand for products in Mae Jo Municipality, San Sai District, Chiang Mai Province.

Reliability measures based on the Likert's Scale criteria were categorized into five levels: the researchers collected questionnaires about the data on non-sample populations and then analyzed the results for reliability using Cronbach's alpha coefficient (Puangrat Thaweerat, 2000: 125).

3. Interview for the follow-up assessment of people with disabilities after the training has interview issues: 1) Family history 2) Well-being/quality of life in the pre-training period 3) Well-being/quality of life in the post-training period 4) Occupation 5) Results of earnings 6) Management, methods, techniques and success factors 7) Future problems, obstacles and needs.

4. Group discussion The group discussion was used to analyze the potential, strengths, weaknesses, opportunities and obstacles (SWOT Analysis) of the model for improving the quality of life and increasing the capacity of people with disabilities for sustainable agricultural occupation.

4. Methodology

The data collection methods were as follows:

1. Survey study on quality of life of disabled people in Mae Jo Municipality, San Sai District, Chiang Mai Province

2. Preparation of training courses for the development of occupational potential of the disabled group, along with training, evaluation and follow-up examination of the disabled after training for occupational potential development of the disabled group in Mae Jo Municipality, San Sai District, Chiang Mai Province

3. Analysis of problems and ways to improve quality of life and increase the capacity for sustainable agricultural

occupation of people with disabilities in Mae Jo Municipality, San Sai District, Chiang Mai Province consisted of: a survey study on product purchasing behavior of the population group and the results of the questionnaire were used to analyze the case studies together. This was to study the results of the implementation and analyze the problems and obstacles in real development.

4. Creating a model for improving the quality of life and increasing the capacity for sustainable agricultural occupation of people with disabilities in Mae Jo Municipality, San Sai District, Chiang Mai Province by using pilot project, Participation Action Research (PAR), and a model for improving the quality of life and increasing the capacity for sustainable agricultural occupation of the disabled.

V. RESEARCH RESULTS

Part 1: Results of the Contextual Study and Quality of Life of Persons with Disabilities in Mae Jo Municipality, San Sai District, Chiang Mai Province

According to the survey and data collection, there were 160 people with disabilities answered the questionnaire, mostly 101 male (63.1 percent) and 59 female (36.9 percent). The survey results could be divided into 4 areas: In terms of age, it was found that most of the disabled were aged 61 years and over 65 (40.6 percent) and the youngest was under 20 years old, 8 people (5.0%). In terms of education level, 75 persons with disabilities had lower secondary education (46.9%) and the lowest number were 5 who had bachelor's degree (3.1%) and 5 postgraduate students (3.1%). 9 of them were divorced (5.6%) and 85 were childless (53.1%). In terms of family status, the majority of the disabled were 134 family members (83.8 %) and 26 family leaders (%).

In terms of self-esteem of people with disabilities in Mae Jo Municipality, San Sai District, Chiang Mai Province, the overall level was at a moderate level ($\bar{X} = 2.68$, S.D. = 0.94). When considering each aspect, it was found that the self-esteem factors of people with disabilities in Mae Jo Municipality, San Sai District, Chiang Mai Province were at the highest level ($\bar{X} = 2.98$, S.D. = 0.91), followed by the self-esteem factor of people with disabilities in Mae Jo Municipality, San Sai District, Chiang Mai Province in terms of success ($\bar{X} = 2.84$, S.D. = 0.96), factors of self-esteem of people with disabilities in Mae Jo Municipality, San Sai District, Chiang Mai Province in terms of importance ($\bar{X} = 2.71$, S.D. = 1.02), and the lowest was the self-esteem factor of people with disabilities in Mae Jo Municipality, San Sai District, Chiang Mai Province in terms of ability ($\bar{X} = 2.19$, S.D. = 0.93).

Opinions	Mean \bar{X}	Standard Deviation (S.D)	Level of opinion	No.
Factors of self-esteem of people with disabilities in Mae Jo Municipality, San Sai District, Chiang Mai Province in terms of ability	2.19	0.93	Low	4
Factors of self-esteem of people with disabilities in Mae Jo Municipality, San Sai District, Chiang Mai Province in terms of importance	2.71	1.02	Moderate	3
Factors of self-esteem of people with disabilities in Mae Jo Municipality, San Sai District, Chiang Mai Province in terms of success	2.84	0.96	Moderate	2
Factors of Self-Esteem of Persons with Disabilities in Mae Jo Municipality San Sai District, Chiang Mai Province in terms of value	2.98	0.91	Moderate	1
total	2.68	0.94	Moderate	

The quality of life of people with disabilities in Mae Jo Municipality, San Sai District, Chiang Mai Province as a whole was found to be at a moderate level ($\bar{X} = 2.79$, S.D. = 0.84). When considering each aspect, it was found that the psychological quality of life of people with disabilities in Mae Jo Municipality, San Sai District, Chiang Mai Province had the greatest effect ($\bar{X} = 3.29$, S.D. = 0.82), followed by quality of life in social relationships ($\bar{X} = 3.01$, S.D. = 0.85), quality of life in the environment ($\bar{X} = 2.50$, S.D. = 0.86), and the lowest was physical quality of life ($\bar{X} = 2.38$, S.D. = 0.78).

Opinions	Mean \bar{X}	Standard Deviation (S.D)	Level of opinion	No.
Quality of life of people with disabilities in Mae Jo Municipality, San Sai District, Chiang Mai Province in terms of body	2.38	0.78	Low	4
Quality of life of people with disabilities in Mae Jo Municipality, San Sai District, Chiang Mai Province in terms of mental	3.29	0.82	Moderate	1
Quality of life of people with disabilities in Mae Jo Municipality, San Sai District, Chiang Mai Province in terms of social relations	3.01	0.85	Moderate	2
Quality of life of people with disabilities in Mae Jo Municipality, San Sai District, Chiang Mai Province in terms of environment	2.5	0.86	Moderate	3
Total	2.79	0.84	Moderate	

The results of factor analysis with linear correlation of independent and dependent variables using Pearson's correlation coefficient found that factors related to quality of life of persons with disabilities in Mae Jo Municipality, San Sai District, Chiang Mai Province were significantly related to quality of life in several aspects: physical quality of life, psychological quality of life and environmental quality of life, but social relationships were not related to quality of life.

Factor analyses on factors related to physical quality of life of persons with disabilities in Mae Jo Municipality, San Sai District, Chiang Mai Province found that there was a correlation with self-esteem in competence ($r=0.413$, $p=.01$), self-esteem in importance ($r=0.652$, $p=0.01$), self-esteem in

success ($r=0.548$, $p=0.1$) and self-esteem in value ($r=0.413$, $p=0.1$).

Factor analyses on psychological quality of life found that self-esteem in value ($r=0.142$, $p=0.5$) had a statistically significant positive correlation at the 0.5 level, self-esteem in importance ($r=0.215$, $p=0.1$) and self-esteem for success ($r=0.168$, $p=0.1$) were statistically significantly positive at the 0.1 level.

Factor analyses on environmental quality of life showed that they had self-esteem in competence ($r=0.192$, $p=0.1$), self-esteem in importance ($r=0.192$, $p=0.1$), self-esteem in success ($r=0.324$, $p=0.1$), and self-esteem in value ($r=0.343$, $p=0.1$).

variables	1	3	4	5	6	7	8	
1. ability	1.000							
2. Importance	.163**	1.000						
3. Success	.274**	.463**	1.000					
4. Value	.125**	.420**	.256**	1.000				
5. Physical quality of life	.234**	.652**	.548**	.413**	1.000			
6. Mental quality of life	.089	.215**	.168**	.142**	.237**	1.000		
7. Quality of life in relation to social relationships	-.014	.016	-.009	-.067	-.007	.055	1.000	
8. Quality of life in the environment	.192**	.278**	.324**	.343**	.472**	.086	.118	1.000

Remark : * $p<0.5$, ** $p<0.1$

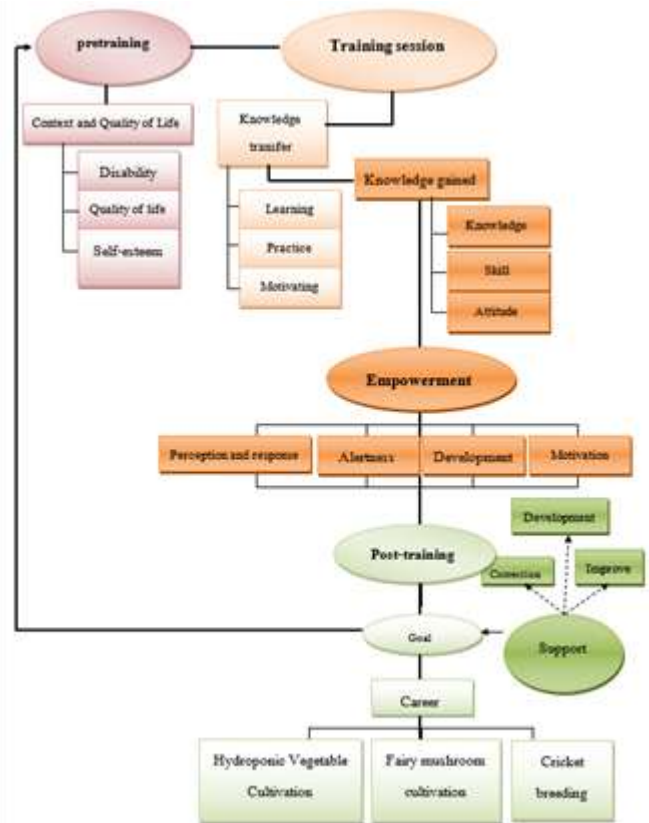
Part 2 : The results of the contextual survey and quality of life of the disabled group, the researcher was aware of the quality of life and needs of the disabled group in Mae Jo Municipality, San Sai District, Chiang Mai Province.

The results of the contextual survey and quality of life of the disabled group, the researcher was aware of the quality of life and needs of the disabled group in Mae Jo Municipality, San Sai District, Chiang Mai Province. Therefore, the researcher raises the quality of life and increases the capacity for sustainable agricultural occupation of people with disabilities in Mae Jo Municipality, San Sai District, Chiang Mai Province by means of organizing training courses and training along with evaluating trainees for development activities and performing activities in accordance with the vocational training plan. Training was to enhance skills and learn the basics of occupation. Agricultural Occupational Courses was available on agricultural occupations: hydroponic vegetable cultivation, Bhutan fairy mushroom cultivation and cricket farming. In addition, there are organic plant inputs in the course of various plant inputs so that people with disabilities could make a living for themselves and accounting for income and expenses in their future occupations or businesses. The process could be summarized as shown in the figure.

After the trainees had chosen a career according to their aptitude for vocational training for a career that would generate income for themselves and their family during 60 days, the researcher followed up after the training in the area to inquire about problems and obstacles. As a follow-up to the

results, it was found that out of the total number of 67 people who received practical training, 28 were knowledge leaders for their careers and production and sales and there were 12 occupations during the initiation period.

Part 3: The results of the analysis of problems and guidelines for improving the quality of life and increasing the capacity for sustainable agricultural occupation of people with disabilities in Mae Jo Municipality, San Sai District, Chiang Mai Province



Analysis of the problems of people with disabilities after agricultural occupation consisted of the problem of lack of marketing channels, price problems and the need to find new marketing channels, problems of long-term inability to store large quantities of produce, shortage of tools and equipment related to product storage such as freezers, refrigerated cabinets, vacuum bags, sealers and limited cultivation area. As a result, the produce was not enough to bring the produce to sell but can be eaten in the household. The problem of age, most of the handicapped people were elderly, making them unable to work. Product problems were the result of numerous epidemics resulting in unprofitability and shortage of working capital. Technology problems in the preparation of marketing channels and public relations media for selling products of

people with disabilities were quite difficult due to the rapid changes in modern technology. The lack of a sure source of purchasing produce and reasonable prices was one of the major problems as people with disabilities do not know the various purchasing sources. If there was no business matching, entrepreneurs know a narrow channel of marketing. As a result, the products must be traded at low prices and not in accordance with market mechanisms, especially the highly competitive cricket business.

The solution was to buy products from people with disabilities with vocational training at fair prices. Purchasing products from people with disabilities with vocational training at fair prices was done in order to promote marketing channels and distribute products to people with disabilities. Since the Vocational Training Center had a production capacity and suitable product storage facility, it increased the potential of providing distribution channels for people with disabilities and to accelerate the development of expanding distribution channels, including exhibitions in various locations to create career opportunities and product processing according to the needs of consumers in Mae Jo Municipality. Improving and developing products and processed products to meet the market demand both locally and outside the area should be taken into consideration quickly in parallel with the pushing of processed products into the production group under the Yim Sue brand. This brand represented products for people with disabilities. Training for vocational training in various professions that meet the needs of people with disabilities should be organized in order to increase the variety of professional skills.

Part 4: The effect of the model for improving the quality of life and increasing the capacity for sustainable agricultural occupation of the disabled in Mae Jo Municipality, San Sai District, Chiang Mai Province

The results of research on agricultural product management of the disabled in the municipality, Mae Jo, San Sai district, Chiang Mai province were found. Most of the disabled people chose to raise crickets the most, followed by hydroponic vegetables and Bhutan fairy mushrooms. Most cricket breeders had three distribution channels: selling directly to consumers, selling to wholesalers and selling to retailers. They were mainly sold in the form of boiled and frozen crickets, but often suffer from inconsistent prices. Researchers and Vocational Training Centers therefore had the following guidelines:

1. People with disabilities who raise crickets must form a group to receive occupational assistance as a buying agent for agricultural products: Hydroponic vegetable milk cricket and Bhutan fairy mushrooms to provide distribution channels for the disabled and to receive fairness in the trading of produce.

It could also be used to convert the produce into other products. In order to purchase agricultural products, participants must apply for participation and be selected from the "Smile Sue" ASEAN Vocational Training Center for Persons with Disabilities.

2. The selected members could bring their produce to sell to the ASEAN Vocational Training Center for the Disabled. The price standard was in accordance with the standard quality of the produce, which was specified in the regulations for the wholesale of products to the ASEAN Vocational Training Center for Persons with Disabilities "Yim Sue".

3. Determining the selling price of produce from members of the disabled group found that there was a clear selling price of the produce and in accordance with the market mechanism as follows:

3.1 The purchase price of hydroponic vegetables is 100 baht per kilogram.

3.2 The purchase price of Bhutan fairy mushrooms is 60 baht per kilogram.

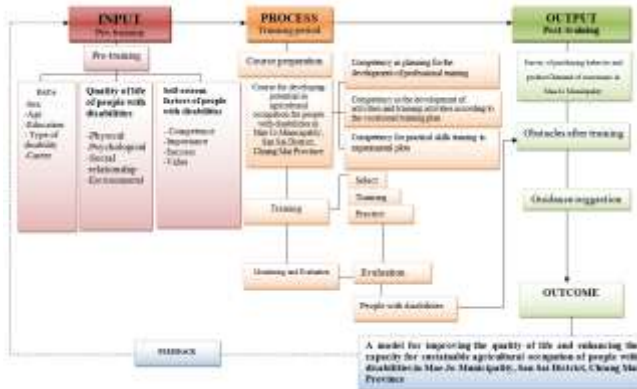
3.3 The purchase price of crickets is 150 baht per kilogram.

The result of purchasing products had resulted in people with disabilities joining as group members in order to sell more products to vocational training centers and thereby increasing their income and quality of life. They could have a monthly income that is sufficient to support their living.

VI. DISCUSSIONS

1. Creating a model for improving the quality of life and increasing the capacity for sustainable agricultural occupation of the disabled. Case Study: Mae Jo Municipality, San Sai District, Chiang Mai Province. Research could be divided into 3 phases: pre-training, training session and post-training. There was an action research process as follows: In the pre-training phase, researchers and the International Foundation for Persons with Disabilities Northern Branch surveyed information about people with disabilities to study their living conditions and problems with their occupation and quality of life. The study was divided into three parts: information on people with disabilities, quality of life of people with disabilities, and self-esteem factors. In this phase, the survey was to convert the results of the problem into factors of development and led to the principles of training courses in the next step. Next was the training phase. Researchers and the agency of the International Foundation for Persons with Disabilities Northern Branch would shift their role to the "developer" as a training provider and study and observed the changes that have occurred, including monitoring and evaluation. In the later stages, the curriculum was developed using survey data to develop courses, training and training procedures: selection, training, practice and

evaluation. During the post-training period, the researcher and the organization set a schedule for the monitoring of the disabled by analyzing the problems and obstacles in the occupational development of the disabled in Mae Jo Municipality, San Sai District, Chiang Mai Province, then came a strategy to develop the career potential of the disabled group. From the action research process, it could be summarized as shown in the figure.



and knowledge building for success. The nature of the down-top movement is shown in the figure.



2. A comparative analysis of the body of knowledge of persons with disabilities in order to enhance the quality of life and increase the capacity for sustainable agricultural occupation of persons with disabilities could be summarized as follows:

1. The pyramid compares the disabled like a pyramid with a broad base and a spire that divide its composition into 4 layers:

1.1 Attitude is at the bottom, but it is a strong foundation and plays an important role in the minds of people with disabilities, which is the internal driving force that enables a person to perform behaviors that lead to goals or achievements.

1.2 Skill is a component of a disabled person, which is derived from knowledge base and practical ability and enables efficiency such as vegetable growing skills, cricket raising and knowledge transfer.

1.3 Knowledge starts from learning and practicing skills until mastering a specific subject, arising from the attitude of perception and development to reach the goal.

1.4 Success is at the top of the pyramid, which is the inner-to-outer part.

2. The support of the network organization is to reinforce the capacity of the people with disabilities in all sectors of agricultural occupation, from the formation of attitudes, skills and knowledge in order to achieve success.

3. Empowerment is part of the network organization's support related to motivating people with disabilities. Rather, empowerment takes place within the mental state of people with disabilities and leads to an attitude drive towards skill

3. The internal factor analysis has 4 important factors:

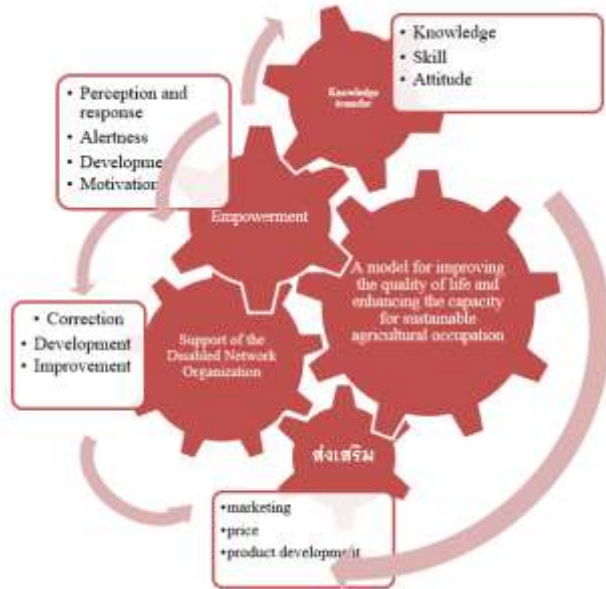
1. Knowledge building is the first factor in transferring important things such as learning, practice and motivation until knowledge is born: knowledge, skills and attitude. Such relationships between knowledge, attitudes and skills can develop people with disabilities to adapt to the changing conditions associated with career building. For example, the cognitive assessment of the participants during the pre- and post-training period showed that the participants had a higher level of knowledge after the training and more than the pre-training period.

2. Empowerment motivates practitioners to gain self-confidence in the sense that they are capable of completing tasks. It develops a person's sense of self-confidence and motivates action until eventually success. This definition is to develop a person's sense of belief in empowering one's potential and empowering one's ability to work and solve problems on their own.

3. The support of networking organizations has greatly influenced participatory action research because improving the quality of life and increasing the capacity of people with disabilities for sustainable agricultural occupation is a process and an endless cycle. When developing to the end of a certain period of the problem will have to evaluate the development and then start to come up with a development plan for that problem in the next phase.

4. Promotion is a guideline to help people with disabilities after training and as a starting point for their careers by emphasizing promotions such as setting prices, creating marketing channels and developing products.

These factors are like strong backlashes that contribute to mechanisms for improving the quality of life and empowering people with disabilities' agricultural occupations to be sustainably driven, as shown in the figure.



VII. CONCLUSION

1. Improving the quality of life and enhancing the capacity for sustainable agricultural occupation of people with disabilities should be undertaken to assist the disabled through pre-training, training session and post-training.
2. Agencies related to career building should be established for people with disabilities or recruiting staff to help people with disabilities for occupation. However, creating a sustainable career for people with disabilities requires a long period of time, so specific agencies or personnel should be established to provide care and assistance in the long term.
3. Career assignments in training courses should be adapted to the context and disabilities of people with disabilities.

ACKNOWLEDGEMENT

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research would lead to the development of the quality of life of people with disabilities to be sustainable.

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The Potential Development of Lacquer ware Handicrafts of Lanna culture in Order to Reinforce Value to the Consumer Market and Connect Culture to Community Base Tourism by the Ban Sri Pan Krua Chiang Mai, Thailand

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Abstract— This research aim to develop the lacquer products of Lanna culture by increasing values or further in innovations to the customers of Sripankrua House and study for the guideline of cultural connection to the tourism by the community of Sripankrua house located at Thasala in Mueng Sub-District of Chiangmai province. In this case, the mixed method research is involving with the gathering of quality and quantity data analysis method. According to the result of the lacquer product development, it created the values or further in the innovations to the customer market of Sripankrua House, such as tissue boxes, shoulder bags, glasses cases and accessories. Then, it has the designing concept idea by using the curve line as the basic of shape design; however, it is involving with the product design to have the free shapes with some curving parts by maintaining of the original characteristics as being the unique lacquer products, and in this case the coloring technique is to use the colored saw dust mixed with glue to attach on the bamboo coils for receiving the natural colors. With this case, according to the customer questionnaires to the new product development with one hundred and four people, it was found that the overall satisfaction for the customers with the new product development to the lacquer values in Lanna culture of Sripankrua house in overall was in excellent level, and when considering in each field it was found that the overall was in excellent level with the most satisfied product that is the shoulder bags, ($\bar{x}=4.46$, $S.D.=0.74$) and the potential assessment for the cultural tourist attractions were in three fields that are the potential for tourist attraction with the scores of 35.93, the potential of tourism support with the score of five point seven eight and the management with the scores of twenty-eight point two eight or the total scores with 69.99 as the good level.

Keywords— potential development, lacquerware handicraft, culture, Community Base Tourism

I. INTRODUCTION

The lacquer product is one of arts works for Lanna culture or the utensil relevant to the daily life of these people from the past. Besides, it can say that the lacquer products are the production of cultures with lifestyles or representing to the Lanna characteristic in excellent level. Moreover, when speak to the lacquer products it refers to the bamboo containers covered with lacquers with decorating patterns of produced gold leaves or produced silver leaves by Chiangmai people from the ancient Tai-Kern tribe.

Furthermore, the lacquer products are the local handmade arts works from the people living in South East Asia people before the history, and Chinese people are the first nationality to know the lacquer production from putting for Yangrak to pour

in the works or with two hundred and fifty floors in some works based on the expert skillful with good knowledge and ability.

Then, the lacquer products have been developed until nowadays, and now it still has the lacquer occupation by using the lacquer technique from many steps, and it has transferred the knowledge from the ancient people to the new generations by teaching on telling stories. Significantly, the new generation has been taught from the ancestry without recording in details or certain methods.

With this case, in current day the Sripankrua House located at Thasala Sub-District of Mueng District in Chiangmai province or the ancient community still do the lacquer as their occupation with inhering from the generations, and they used the fine method from beating in lines to form the containers before putting rak and create in patterns although it has

altered the production method from the past, such as using the oil colors than rak rubber for reducing costs with the convenience to work and increasing the new patterns or putting the egg shells to make decoration, drawing with colors and developing the stripped coil patterns.

Nowadays, it has the alteration of social and economics with more influences of sciences and technology to the new lifestyles of people in society. Then, they changed from living in the rural society to the city society with high competition in every field, and it has the development for plastic and aluminum products in industrial level with the high production result and the less popularity for using lacquer. What's more, in current day it has found several problems from the lacquer products, such as using the materials replacing of tools and lacking of the maker technicians. Thus, when the requirements are disappeared with the quite slow production it made the trouble of selling due to the unpopular and unnecessary to use the product including of the low incomes for the maker technicians until the manufacturers have turned to apply with other occupations, especially for most of the grandchildren not being the inheritors for this business. As the result, according to the above detail the researcher is interested to study for the lacquer products with the development to increase the values as the community tourism guideline by adding the economics income channel for the community.

II. RESEARCH OBJECTIVES

1. To develop for the handmade product development in Lanna culture for increasing the value or further in the innovations to the customer markets for Sripankrua house located at Thasala in Mueng Sub-District of Chiangmai province.
2. To study for the guideline of cultural connection with the tourism by the community of Sripankrua house located at Thasala Sub-District in Mueng District of Chiangmai province.

III. LITERATURE REVIEW

Market Segmentation

Levels of market segmentation to be classified into six levels as this following:

Mass marketing is the market to focus on the importance of mass production by making the mass distribution and the mass promotion. Besides, there are the similar requirements as the concept idea of the production-oriented for the mass production to reduce the production costs.

Segment marketing is the market segment, and this concept idea is viewed that there are the different requirements for the

market. Then, the company must manage the products and the market segment to be different from each targeted market. Besides, in this case it can contribute to the business advantages and the market segment for responding to the customers effectively.

Niche marketing is the market tool with the specific requirements or the narrower group than the market segment because it has the large size of market shares with high competition. However, according to the Niche market there are a few competitors joining in the market groups while the small market groups are interested from the small companies. On the same way, the large company can use this strategy as well, but most small market groups have high incomes to be ready for purchasing the expensive products with specific requirements, such as the good and special products.

Local marketing is the marketing strategy to response with the requirements for the customer groups in local areas, such as each branch of shopping mall to provide with products by using of different strategies. Moreover, the bank in each branch is emphasizing on the different customer strategy service, but the local market is based on the demographics with the main values and lifestyles for each community or local area.

Individual marketing is the marketing tool by focusing on any customer, and the sample of business to use this strategy is the computer company for selling the products to the banks, the education institutes, or any company. Besides, it is the same way as the tailor of instant clothes for sewing the clothes to any retail store as same as the tour company for setup the tourism program to the families or any student group. Thus, this strategy is called as customized marketing or one-to-one marketing or segments of one.

In this case, the self-marketing is the market that the customers help yourself to purchase the products, and each customer has more responsibility to consider for the products and the product brands, such as purchasing via the internet, mobile phones, Fax or E-mail and letters.

Patterns of market segmentation

According to the market segmentation with the different demography, such as incomes, ages and habitats, it has been classified the market with the likeliness, satisfaction requirements and market behaviors to the products consisting of three patterns as these details:

1. Homogeneous preferences is the characteristic that every customer in the market has the same preference, requirements, satisfaction and marketing behaviors resulting in the similar quantity of the products.
2. Diffused preferences are involving with each customer that has the different marketing behaviors, preferences, and

requirements with the properties of the products. Then, the manufacturers will present for the standard products to be accepted from the most people, especially for the market competitors with the regulating of the close position of products in companies or with the less competitive position.

3. Clustered preferences has the similar characteristic with the first case, except for the preferences of needs classifying into the obvious groups with the three choices of marketing business that are the center position selection by presenting of the products in general standard. Moreover, it is involving with the acceptance for undifferentiated marketing by choosing with the position of the one largest part for concentrated marketing, and it has selected for three groups with market segmentation suitably to each targeted differentiated marketing. Additionally, normally it has made the market plan with using of 4P strategies to be well-known as the most basic of Product Price Place Promotion including of using for the principle with each planning to be the requirements of the targeted groups. As the result, there are some of the same businesses for 4P that are used for each good planning principle with the requirements for the selected targeted group. Then, in some businesses it cannot make the adjustment for all 4P principles in short term because it can adjust for the strategy of the market segmentation continuously with the most suitable level, (4P to be called as marketing mix):

1. Product or service that we are presenting to the customers and the guideline of suitable products to know about the requirement goals, such as the making of plastic bags for the fresh and clean juice to be held comfortably without caring for the tastes that have done with the customer requirements or not putting sugar for the un-sweet tooth as being the guideline for selling the products in two methods:

1.1 Different product that is the different method that aids the customers to realize whether any different characteristic or the preferences, such as special properties, images, use, safety and stability for the customer groups in the niche market.

1.2 Low price product that is to reduce of the unimportant quality, such as the products made in China with the bad quality and cheapness or the copy product from the well-known brand in superstores; however, it should select for the different guidelines, especially for the cheap products. However, according to the large companies they have made the cheaper costs than the small ones, but for the service field we have started with the cheap price before finding with some markets that the large manufacturers have neglected to.

2. Price is the quite important value in the market; however, we shouldn't make the discount of the price only because it may not improve the selling if other problems don't

be solved. Similarly, according to the pricing it should be in the suitable level with our products and the targeted groups. For example, when we sell the juice in Chatuchak market it should setup for the less prices, but when we sell the products at Siam area we can't make the high level of discount with ten baht due to the change of people's mind or causing with the less people numbers in any group, the unworthiness and the incompatibility between the prices and the images.

With this case, the customers are always still wondering and worried about the products because nowadays the price is representing for the product image or the most important value. However, according to the small business it shows that the required price is not the complex one, except for viewing in the numbers to be determined as the easy prices:

2.1 Set up the price with the customers or the willingness from the survey or the questionnaires.

2.2 Set up the price with the market one or the competitive price in the market, but when it has the low price, the benefit will be less afterward. Thus, when we think to determine the price with the market, we must think backward that the product costs should be in what level for gaining the benefits as the reducing costs goal.

2.3 Set up the price with the costs plus the benefits, and this method is to calculate that our costs is in what level plus to the shipment prices, labor and benefits to gain the totals price. However, when the price is in high level we need to make the public relations or adjust for the images with the prices.

3. Place is the method to bring the products to the customer's hand, and if the products are sent to several locations, the selling and distribution method must be important. Moreover, according to the principle of the distribution selection it shows that the selling in the most places is not the best choice because it is depending on what products they are and who the targeted groups are. For example, according to the royal class utensils, it can't be sold with too many quantities for losing of the good images, and another subject to be realized of is the distribution method or the distribution costs, such as selling the products in 7/11 stores with the high level of distribution, except with the high costs products. However, when saying to the front store business, it refers to the location with the suitable selection for our products.

4. Promotion is the method to do activities by telling for the customers about the product characteristics, such as advertisement in medias or doing activities for letting people to purchase our products; namely, when we make the annual discount. Besides, when speaking to the small business it refers that the advertisement may be the unnecessary thing because it may spend with the high or less costs depending on our channel, and the good with free cost is the internet media that there are the increasing users in each year. In addition, it

represents that other medias may be used no matter of brochures and posters , but if we say to the local media it might be involving with the parades , local radios and local newspapers. However, according to the method for media selection it may look at the availability of the targeted group apart from the expenditures ,such as when using the advertisement for the adult group by selecting the free internet media or selecting for the adult websites , except for the teenager websites to talk with each other ,etc.

Tourism Concept Idea by Community

Podjana Suansri (2546: 178-179) specified that the concept idea and the origin of the word ecotourism is from Western countries, and this definition is depending on each people background or the society of the writers or the relevant academic people. In this case, most people give the importance in the development of natural resources and environment conservation as the Thai society context with the natural relationship. Then, according to this concept idea it is emphasizing on the role of people and community increasingly from four community sides of the components and the important issues:

1. Natural Resource and Culture Field that is involving with the abundant natural resource community base and the production method relying on the sustainable natural resources with specific uniqueness of cultures and traditions and the tourism resource management with the importance to be concluded as two ways:

1.1 According to the tourism resource management, it aids the organization to response with the outside environments with good effectiveness, especially for the current world to have the quick change with multiple communication routes and high competition. Then, the organization has the management system to acknowledge the information with quickness for setting up the organization patterns and determine the organization strategies to response with the outside environments in excellent level with opening widely.

1.2 According to the tourism resource management, it aids to make the correct and quick decision for allocating of the limited budgets with the highest level of effectiveness and advantages. Then, it is involving with the manpower rate management, the expenditure management and the equipment management as the work sharing in teamwork or with cooperation between agencies. Thus, it doesn't only refer to the people, the agency or only each work , but it also refer to the cooperation for using resources in correct and suitable level.

2. According to the community organization, it is involving with the important subject that the community should have the understanding society system with several experts, and the community might have their owner feeling with the

participation of development processes after studying from the successful conditions of community tourism development with the tourism suggestions into the studied sustainable subjects:

2.1 The community size with the tourism development shouldn't be too large, except for being as the village community characteristic based on the compromise to solve for the conflicts in the community without the classification of classes and the family relationships under the norms of reciprocity to be appeared clearly as the economics relationship.

2.2 The community should have the ethnicity characteristic as the community uniqueness to be the same nationality of people with the influencing to the participation and the strength of natural resource management.

2.3 The community should have the dignity and proudness for their original life style with beliefs, cultures and intellects of resource management to be ready for transfer to the tourists or other relevant people for making protection and reducing the alteration in the near future.

2.4 The community lifestyle with the clearly connection of nature is combined to be the intellects on management and utility including of the maintaining for having the sustainable resources in system to represent of the knowledge in the value system of resource for the daily life.

2.5 The members in the community should pay respect for the regulation rules as being the traditional norms with the social forbidden and natural resource maintenance.

2.6 The community should accept for the result from the tourism development in term of the unstable incomes due to the tourism nature with seasons and the negative effects for the social and environment fields including of the alteration inside the community with the different cultural popularity trend in local areas.

2.7 The community should make realization together that the tourism is the natural resource tool with the original life styles while the economics advantages are in the form of the outgrowth incomes only.

2.8 The community backbone or the community leader should have the strength to be accepted from the members by sacrificing the personal times for managing on the tourism development with high level of leadership , knowledge and smartness for being respected and accepted to be confident. Besides, it has gained the ecology and budget investment knowledge including of the understanding ability for the community with the confident creation to the tourism management resulting in the community participation to be involved in the tourism processes.

2.9 The tourism management in the community must have the participation in personal by gathering in the economic groups.

Then, it is the development based on the economic components to prepare for placing of the tourism services with the economic costs management under the Community Organization or Community Institute, such as gathering in the tourism clubs, tourism cooperatives, tourism groups or tourism networks with good management.

3. Management has the rules for environments with cultures and tourism as the connection for the overall community development, and the tourism management in community areas should have the participation by regulating rules or agreement to use in the areas and tourism resource with code of conduct for fair benefits allocation and advantageous funds to develop their own economics and society.

4. Learning is the tourism activity characteristic to build knowledge and understanding of lifestyles with different cultures to have the management system with learning processes between people and the visitors for creating consciousness of natural resource conservation with cultures for people and the visitors.

Learning Processes for Community Tourism

Learning Processes for Community Tourism with important components:

1. Potential of people should begin from the people in community to know their origins for being ready to tell information by learning about harmony to work together.

2. Potential of area means the natural resources and cultures with traditions and local intellects for the community people to know and care of their resource values with good and sustainable management. Then, the community should have the readiness to learn with good knowledge and understanding in the basic concept idea of the tourism with the area management.

3. Management is not the easy way to make the most benefits with balance for most people. Thus, the community should operate the tourism management by community: "Community-based Tourism : CBT" to have the accepted leaders with good thoughts and visions for making understand about the tourism including of gaining the participation from the relevant government agencies. In addition, it should talk about the guideline regulations with the preparation for each area to set up the sustainable tourism patterns with activities, distribution and incomes allocation. Additionally, the most important subject for our community is to serve everything for the public.

4. Participation is the communication to conduct of opinions and argument including of finding the solutions from gathering ideas with the local research experiences, and it was found that the community has setup for the talking stage with planning to cooperate for relevant agencies by working

together including of the creating of community rules for the visitors to comply.

IV. RESEARCH METHODS

1. Population and Sampling

1. According to the main informants in group conversation, it has made the analysis for the lacquer product development of Sripankruea house located at Thasala Sub-District in Mueng District from Chiangmai province with focus group discussion for 20 people. Then, it has selected for the Purposive Selection, such as the manufacturer groups of lacquer products in Sripankruea house for 8 people including of the community president of Sripankruea house and three committees with the group of 9 lacquer entrepreneurs.

2. Population group with the first objective consists of the product consumers and community tourists of Bansripankruea house located at Thasala Sub-District in Mueng District of Chiangmai province for six hundred and seventy-four people with Simple Random Sampling, and the researcher has selected for the group sampling with the first objective by using of Taro Yamane formula as the deviation value equally to 0.09 from six hundred and seventy-four populations calculated from the group sampling size with one hundred and four people according to the Simple Random Sampling of questionnaire distribution.

3. Population group with the second objective is the model tourists to travel at the tourist attractions in the community for using of potential assessment with Purposive Selection totally with fifty people, and they are the teachers and the students in the faculty of tourism development from Maejo University. Then, the relevant agencies have pushed up for tourism according to the selection standard and the searching of the group sampling, so the researcher has determined to gain the community tourist attraction data.

2. Tool

According to the quantity research and the tools, it is involving with the focus group classifying into the small meeting subjects as the quality data analysis for twenty main informants. Moreover, it used the contents analysis with guidelines and the new product requirements from the focus group with the guidelines of new product design, besides the quantity data gathered from one hundred and four samplings. it used the questionnaires and the opinions of the customers to the new product development by increasing with the lacquer values in Sripankruea house located at Thasala from Mueng Sub-District of Chiangmai province. With this case, it used the self-respond questionnaire classifying into three steps: 1. Questionnaires about general information of the respondents with check list from multiple choice questions, such as

genders, ages, statuses, marriage and the most education level

2. Opinion levels of the customers to the new product development with the increasing of lacquer values for Lanna culture at Sripankrua house located in Thasala Sub-District of Mueng District in Chiangmai province and 3. Suggestions and the standard assessment with cultural tourist attractions classifying into three components: attraction with tourism and potential to place for tourism and management.

3. Processes

According to the research processes, it can be developed into four steps that are the concept idea analysis, research tool creation, test and result assessment: 1. Setting up the meeting for the informants to make understand and inform about the objectives by gathering data in the community for the researcher to study with the new product design guidelines and the new product requirements 2. Developing for the new lacquer products and innovations to response with the market requirements and the customers based on the participation processes or PAR 3. Setting up for the questionnaires and the opinions of the customers to the new product development by increasing with the lacquer values to Lanna culture of Bansripankrua house located at Thasala Sub-District in Mueng District of Chiangmai province and 4. Setting up for the conference to study with the guideline of the tourism culture connection by the community of Bansripankra house located at Thasala Sub-District in Mueng District in Chiangmai province based on the tourism development processes.

According to the data analysis, it used the result from the dialogue to be analyzed and concluded with the important issues for the data analysis from the computer system by using of instant program in social research or the data analysis statistics. Besides, it used the descriptive analysis based on the basic statistic values, such as percentages and standard deviations to make explanation in the table as the steps shown in the figures.



V. RESEARCH RESULTS

1. According to the result of lacquer product development in Lanna culture, it can increase with the values or further in the innovations to the customer market of Sripankrua house, such as tissue boxes, shoulder bags, Glasses cases and accessories. With this case, it had the design concept idea with the curve line to express the feeling of liveliness, sensitivity and gentleness including of the movements and the free product design with some curving parts as the original form of lacquer uniqueness. Then, it has used the color technique, or the colored saw dust mixed with glue to attach on the bamboo coils to receive the natural colors by emphasizing on the original patterns of the wood and the wood colors. Similarly, according to the questionnaire result to the customers with the new product development for one hundred and four people, it was found that most of the group samplings are sixty-eight females with percentages of sixty-five-point three following by thirty-six males with percentages of thirty-four point six including of most of them to be in the ages between twenty-one to thirty years old with fifty-six people with fifty-three point eight percentages and the least level that is from three people with the most age for more than sixty-one years old or with percentages of two point eight.

Additionally, according to the marital statuses they are found to be single with sixty-nine people or with sixty-six percentages and in the marriage status for twenty-four people or with twenty-three percentages including of the less level on the widow status for eleven people or with ten point five percentages as well as the education level field to be found that most group samplings had graduated in bachelor degree with seventy-two people or with sixty-nine point two percentages following by the higher level than bachelor degree with twenty-two people or with twenty-one point one percentages and the least level on diploma graduation level for ten people with nine point six percentages and the income field that was found that there were three people with the average incomes at least for twenty thousand and one baht with two point eight percentages.

According to the opinions of the customers to the new product development, it has increased with lacquer values in Lanna cultures of Sripankrua house located at Thasala Sub-District in Mueng District from Chiangmai province. With this case, according to the product field it was found that it is involving with the beautiful design, color tone control and patterns with the most level that are from the bags ($\bar{x}=4.15, S.D.=0.85$), accessories ($\bar{x}=4.02, S.D.=0.85$), glasses cases ($\bar{x}=3.89, S.D.=0.86$) and tissue boxes ($\bar{x}=3.77, S.D.=0.90$).

Product characteristics, it has seen with the most level of new modern design by the customers that are from the bags ($\bar{x}=4.05, S.D.=0.83$), tissue boxes ($\bar{x}=3.91, S.D.=0.89$),

earring accessories ($\bar{x}=3.64, S.D.=0.88$) and tissue boxes ($\bar{x}=3.54, S.D.=0.88$).

Product characteristics, it has seen with the most level of local intellects that are from the bags ($\bar{x}=4.83, S.D.=0.90$), tissue boxes ($\bar{x}=4.77, S.D.=0.88$), glasses cases ($\bar{x}=4.29, S.D.=0.81$) and earring accessories ($\bar{x}=4.12, S.D.=0.87$).

Product characteristics, it has seen with the utility advantages by the customers in the most level that are from accessories ($\bar{x}=3.95, S.D.=0.80$), bag ($\bar{x}=3.93, S.D.=0.77$), glasses cases ($\bar{x}=3.71, S.D.=0.74$) and tissue boxes ($\bar{x}=3.56, S.D.=0.79$).

Product characteristics, it has seen with the most strength and durability by the customers in the most level that are from the glasses cases ($\bar{x}=4.74, S.D.=0.88$), tissue boxes ($\bar{x}=4.33, S.D.=0.83$), earring accessories ($\bar{x}=4.25, S.D.=0.76$), and bags ($\bar{x}=3.51, S.D.=1.02$).

According to the overall satisfaction to the customers with the new product development by increasing the lacquer works in Lanna culture of Sripankrua house, it was in the most level, and when considering in each field it was found that the most satisfied product is shoulder bags ($\bar{x}=4.46, S.D.=0.78$), followed by tissue boxes ($\bar{x}=4.31, S.D.=0.78$), glasses cases ($\bar{x}=3.84, S.D.=0.74$), and accessories ($\bar{x}=3.25, S.D.=0.77$).

Opinion of overall satisfaction	Average (\bar{x})	Standard Deviation (S.D)	Comment level	No.
Tissue boxes	4.31	0.78	Highest	2
Bags	4.46	0.74	Highest	1
Jewelry such as earrings	3.25	0.77	High	4
Glasses cases	3.84	0.74	High	3
Total	3.96	0.75	High	

According to the opinions of the customers to the new product development, it can increase for the lacquer values in Lanna culture of Sripankrua house located at Thasala Sub-District in Mueng District of Chiangmai province with the overall price in excellent level, ($\bar{x}=3.97, S.D.=0.82$). Moreover, when considering in each field it was found that the product price is suitable with the quality in the most level ($\bar{x}=4.22, S.D.=0.89$), following by the requirements of product price levels to make purchasing ($\bar{x}=4.00, S.D.=0.83$) and the least level that is the requirement to have the stable product price ($\bar{x}=3.81, S.D.=0.80$).

According to the opinion level of the customers to the new product development, it has increased for the lacquer values in Lanna culture of Sripankrua house located at Thasala Sub-District in Mueng District of Chiangmai province with the overall of place field in the most level ($\bar{x}=3.61, S.D.=0.88$). Moreover, when considering with the

incomes field, it was found of the customer would like to decorate the selling location well conforming to the product concept idea ($\bar{x}=4.37, S.D.=0.89$), followed by the requirement to sell the products through online channels ($\bar{x}=3.63, S.D.=0.89$), and the least level with the requirement for having with the sale representative on the products ($\bar{x}=3.17, S.D.=0.87$).

According to the opinion level of the customers to the new product development, it has increased the lacquer values of Lanna culture from Sripankrua house located at Thasala Sub-District in Mueng District of Chiangmai province with the overall market promotion in the excellent level ($\bar{x}=4.23, S.D.=0.73$). Moreover, when considering in each field it was found that the customers would like to have the service channels for the product selection with many payment methods ($\bar{x}=4.78, S.D.=0.70$), following by the requirement to use the returning service for the products or the after sale services ($\bar{x}=4.67, S.D.=0.74$) and the least level or the requirement to have the employees to give the knowledge of the products ($\bar{x}=3.43, S.D.=0.74$).

2. According to the result for studying the guidelines with the culture connection of the tourism by community at Sripankrua house, the researcher has setup the pilot project for the model tourists in Sripankrua house including of using the potential assessment for cultural tourist attractions in three fields, such as the potential for tourism attraction, the potential of tourism support and the potential of management. In this case, it was found the total score levels with sixty-nine point nine as in the good level with the potential for tourism attraction with thirty-five point nine three, the potential for tourism placement with five point seven eight and the potential for management with twenty-eight point two eight to be shown as the figure.

Ability of cultural attractions of Baan Sri Pan Khrua community	Point	Point earned
Ability to attract tourism	50	35.93
Ability to support tourism	10	5.78
Management capability	40	28.28
Total	100	69.99
		Good***

According to the above details, there are the development guidelines: 1. The proactive approach with emphasizing on the market development by increasing with the product quantities and the services in the new markets through the production sources in the community; it can become as the tourist attractions for making the good public relations 2. The solving guideline with varieties of tourist activity development in the community 3) The prevention guideline with emphasizing on the creation and the product design to be used actually in the daily life with the modern design product with the good product values and 4) The passive approach

with the gathering in the design development groups to make the differences on the lacquer products

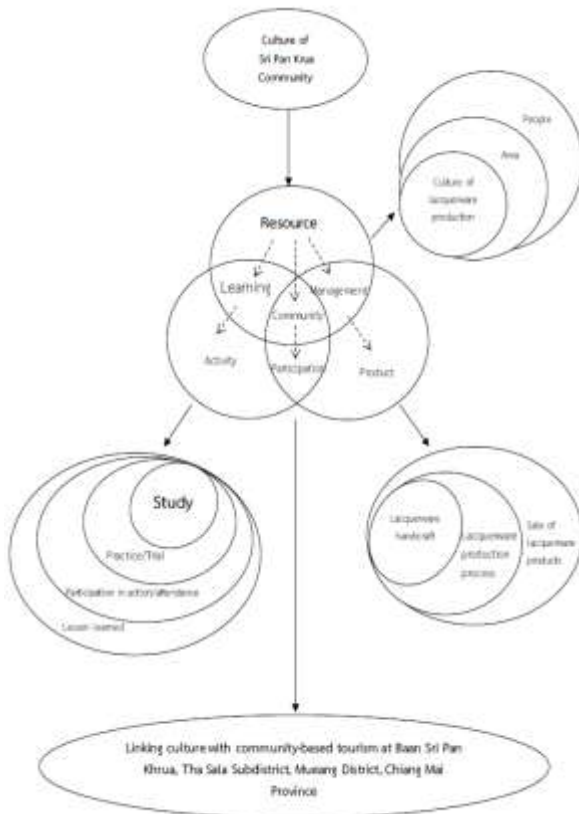
Thus, according to the research method it can make the analysis and the synthesis of three steps with tourism management processes, such as community data analysis, management, activity management test and assessment. With this case, the components influencing to the cultural connection and tourism development are involving with the resources, the activities, and the products.

1) Resources consists of personnel resources , such as makers , laborers , employees , space resources and cultural resources that are involving with knowledge of lacquer production and lacquer design technique.

2) Activities can be classified into four processes that are learning , practicing , inclusion of practice and deletion of lessons.

3) Product is another component to make community tourism connection to gain more values with community incomes support.

Then, this is the main factor to be forced with the supporting ones, such as community organizations, participation, learning and management as the pushing force to gain success as shown in the figure.



VI. DISCUSSIONS

1. According to the result, it can consider that the customers have the product requirements with the differences on images , durability , safety and strength congruently with the product concept to make the assumption that the customers may be interested in the best quality of products with the suitable price from the efforts to improve the products as always no matter of the quality , the mixture pattern , the package , the colors and the tastes to be successful from selling the products with good benefits.

2. According to the result of the guidelines with the cultural connection for the tourism by the community of Sripankrua house located at Thasala Sub-District in Mueng District of Chiangmai province, it used the tourism management processes to develop the community in three steps that are the community data analysis, the management, the activity test and the assessment by setting up of community tourism program in Sripankrua house. Then, it has setup the activities for the tourists to learn with the local intellects for creating the lacquer products from bamboo coils, and the tourists have seen the product values through the lacquer product study method with the local intellects conservation and the future support including of incomes creation and product market channel increase with the potential assessment. What's more, it comes from the cultural tourist attraction in Sripankrua community house from Mueng Sub-District of Chiangmai province as three fields that are the potential of tourism attraction with the scores of thirty-five point nine three, the potential of tourism support with the scores of five point seven eight and the management with the scores of twenty-eight point two eight as the totals of sixty-nine point nine nine in the excellent level. What's more, when considering in each field it was found that the good features of the community tourism from Sripankrua community are from the beauty of cultural arts, the ability of local intellects inheritance and the continuous knowledge with the tourism activity management and the tourism management participation. However, it has the weaknesses for Sripankrua house that is the potential problem to place for the tourism with the basic convenient facilities and the continuity of tradition conservation.

According to the result, it can consider that the potential of community tourism in Sripankrua house is congruently with the characteristics of The Thailand Research Fund (TRF) in A.D. 2002 to be concluded that this is one issue of the tourism by the community in the processes and activity context. Besides, it focuses on the tourism system creation beneficially to the learning processes that has the ecology system of environment study for the tourist attractions with the increasing of knowledge, experiences and impressions to

make realization and correct consciousness to the tourists, the local people and the relevant entrepreneurs called as the tourism for environment study. Therefore, the tourism may create the realization and the consciousness to the community under the changing conditions of the context continuously. Then, it is involving with the guidelines for the cultural connection and the tourism by community of Sripankrua house located at Thasala Sub-District in Mueng District of Chiangmai province:

- (1) The proactive guideline with emphasizing on the market development by increasing with the product quantities from selling and the services in the new market as increasing with the new targeted customer groups with high values to purchase in each time and building for the community production sources to the tourist attractions for making the public relations to the customer groups increasingly.
- (2) The preventive guideline with emphasizing on the tourist attraction development in the community with the suitability for creating the tourist attractions by the community, making the differences for the new products and expanding for the product types to gain the new channels of the customer group with many ages.
- (3) The protective guideline with emphasizing on the creation and designing for the products to be advantageous with modernity and worthiness in the daily life including of the story creation from the product origins with the value development.
- (4) The defensive guideline with emphasizing on the gathering in groups with searching for the learning and design development to make the differences on lacquer product design.

According to the considering on these guidelines, it should emphasize on the human resource development, the space development as being the tourist attractions and the system development congruently to the learning processes. Besides, it is as the concept idea of community tourism by Mr. Weerapon Thongma, (2547 : 17-22) to make an explanation that the learning processes of the community tourism has the important components:) Potential of people by starting with people in the community to know their origins before being prepared to tell the information from learning of the unity with cooperation 2) Potential of space referring to the well-known natural resources and the cultures, the traditions and the local intellects to be conserved by seeing the worthy and sustainable management values of community resources including of the readiness in learning by the community to gain the knowledge and the understanding about the basic tourism concept with the good space management 3) The management to gain the most benefits and 4) The participation with communication for being the media with

arguing problems and finding the solutions from ideas of the local research experiences in the community by setting up for the talking stage with the cooperating plans between relevant agencies and creating with the community rules for the people and the visitors to comply with.

VII. CONCLUSION

1. The relevant agencies should support for the lacquer markets in Sripankrua house with increasing the added values for the products and incomes creation to the community.
2. It should study with the customer requirements to develop the product patterns with the targeted groups increasingly.
3. According to the future study, it should study for the comparison of lacquer works in Lanna culture at other areas by learning about the remarkableness and the culture uniqueness obviously.
4. According to the result, it can use the guidelines of the research study with other communities.

Acknowledgement

Research on the potential development of lacquerware crafts in Lanna culture to create value to the consumer market by linking culture to community-based tourism at Baan Sri Pan Khrua, Tha Sala Subdistrict, Mueang District, Chiang Mai Province had been accomplished because we received a cultural research subsidy from the Department of Cultural Promotion, Ministry of Culture for the year 2017.

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Uplifting the Potential of People with Disabilities to become a Local Tour Guide in Creative Organic Agriculture in Chiang Mai Province

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Abstract— To create a potential model for people with disabilities as local tour guides for organic farming tours in Chiang Mai, people with disabilities were selected in the target areas as follows: 1) a group of people with disabilities in Muang Khong Community, Mueang Khong Sub-district, Chiang Dao District, 8 persons; 2) 12 people with disabilities in Ban Phu Din Community, Mae Ho Phra Subdistrict, Mae Taeng District; 3) 13 people with disabilities in Chedi Mae Krua Community, Chedi Mae Krua Sub-district, San Sai District; 4) 7 disabled people in Ban Tap Tao Community, Sri Dong Yen Subdistrict, Chai Prakan District 5) The handicapped group in Santisuk Community, Doi Lo Sub-District, Doi Lo District 10 persons, total 50 persons. The pilot project was implemented by organizing training to transfer knowledge in the local tour guide course, including the principles of local guides, the art of speaking for guides and organizing organic tourism programs to develop the potential of the disabled in each community. The assessment of the potential of people with disabilities as local tour guides for organic farming in Chiang Mai was conducted by inviting people or external agencies who had experience or are related to organic tourism to participate in the activities with comments and suggestions. It was found that attitude had the highest score, followed by experience and personality at the highest level. Interpersonal relations, service mind, skills and knowledge were at a moderate level.

Keywords— development, potential, local tour guide

I. INTRODUCTION

Chiang Mai has a wide variety of sustainable agricultural tourism. Organic farming is a form of agrotourism that is used as a guideline to preserve the abundance of natural resources and maintain the level of both quantitative and qualitative yields in accordance with sustainable agriculture principles. This production system takes into account the four key principles of health, ecology, fairness and care. According to the international guidelines of the International Federation of Organic Agriculture Movement (IFOAM), the products from organic farming system can generate income for rehabilitation and strengthening of farmers and increase the competitiveness of Thai agricultural sector in the world market if commercial production is developed. In terms of increasing production efficiency and reducing production costs as well as creating products that meet the demands of the niche market, the market for organic food products is growing by 15-20% per year. Chiang Mai Province has guidelines for organic tourism management, which began to set guidelines in the 8th National

Economic and Social Development Plan (1997-2001) onwards. In order to develop sustainable tourism, socio-economic changes must be made while preserving the ecosystem and environment of the community. The current model of sustainable tourism can be divided into two types based on tourism resources: The first model is tourism in nature, which includes eco-tourism, marine ecotourism, agrotourism and litho travel and the second model is cultural based tourism which consists of historical tourism, cultural tourism and rural tourism or 6 village tourism. These tourism models are in line with Policy 4.0, focusing more on the value-added tourism industry and focusing more on health tourism.

At present, groups of people with disabilities in Chiang Mai are engaged in organic farming and need to develop the potential of organic agricultural tourism sites to be new tourist attractions and services. As organic tourism places an emphasis on creative farming, organic farmers with disabilities need to improve their learning about nature and manage their farms. This is to expand the production capacity of organic agricultural products to be sufficient to support the tourism industry and creating value for organic products, as well as developing the potential of people

with disabilities as local guides for creative organic farming tours. This approach creates equal opportunities and security and addresses social challenges. In particular, the development of the potential of the disabled as a local tour guide by acting as a transferor of knowledge, innovation and technology in agro-tourism sites. In order to become more known and accepted, the researcher is interested and wants to study the potential development of people with disabilities in Chiang Mai as a local tour guide for organic farming.

II. RESEARCH OBJECTIVES

1. To uplift the potential of people with disabilities to develop as local guides for creative organic farming tours in Chiang Mai.

III. LITERATURE REVIEW

The Disability Rehabilitation Act of 1991 states that "disability" refers to a person who has a physical, intellectual or mental disability or impairment according to the types and criteria specified in the Ministerial Regulations: people with visual disabilities, people with hearing and interpretive disabilities, people with physical or mobility disabilities, people with mental or behavioral disabilities and people with intellectual or learning disabilities. The Promotion and Development of the Quality of Life of Persons with Disabilities Act 2007 said that "Disabled Person" means a person who has limitations in daily activities due to visual, hearing, mobility, communication, mental and emotional impairments, behavior, intelligence, learning or any other disability, including those who have obstacles in various fields and need special assistance in one aspect to be able to perform everyday activities like a normal person. According to the types and criteria of the Minister of Social Development and Human Security announced, Hammerman and Maikowski (1981) summarized the definition of "disability" as handicap, disability and impairment. They explained how a person may be impaired without disabilities and without a handicap if they have family support or have the right physical facilities. These can heal existing defects and will not affect the person's birth, handicap in life, for example, blind people can't work with their eyes but can use computers with sound effects, playing music and being an athlete.

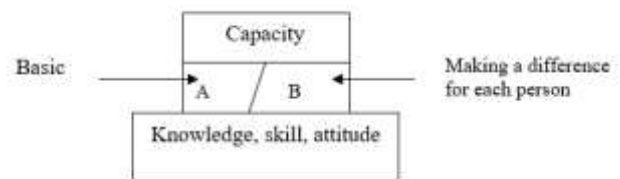
Lohaus and Kleinmann (2002,p.157) stated that potential refers to the use of a person's power or ability to accomplish a given task and is used as an indicator of maximum capacity to accomplish a goal.

Pringle (1994 cited in Sonnentag 2002: 157) states that potential refers to a person's physical, mental, and cognitive abilities which include knowledge, intelligence, intelligence,

health status, educational level, skills and expertise in order to get the performance of that person's work.

In addition, cambell et al. (1993 cited in Sonnentag 2002) stated that competitive behavior is the ability of a member to achieve a specified achievement to operate business under a highly competitive environment, for example, business operators who are trying to gain competitive advantage. Most of them focus on meeting satisfaction, needs, and customer expectations for products and services. Therefore, it is inevitable that "personal ability" is an important factor that gives rise to competitive advantages. If personnel in the organization are human resources with high quality and competence, they are considered as an important force in increasing the quantity and quality of products and services that meet the needs and expectations of customers superior to competitors. (Brophy and Kiely,2002;Cizel et al,2007;Siu, 1998) explained that the importance of functional potential can be categorized as follows: 1. The importance of potential to operators: Work potential is important to practitioners such as self-analysis, self-improvement needs, positive self-esteem and work and continuous improvement of work. 2. Organizational importance: Business strategy, corporate image and recruiting personnel to work in the organization. Potential Elements: Maclelland's concept could be divided into three parts: knowledge, skills and attributes. According to Maclelland's point of view, (Sukanya Rassamee Thammachot 2004 : 48), competencies are composed of knowledge, skills and attitudes/motivation or knowledge, skills and attitudes/motivations to lead to competence as shown in the figure.

According to the figure above, knowledge, skills, and



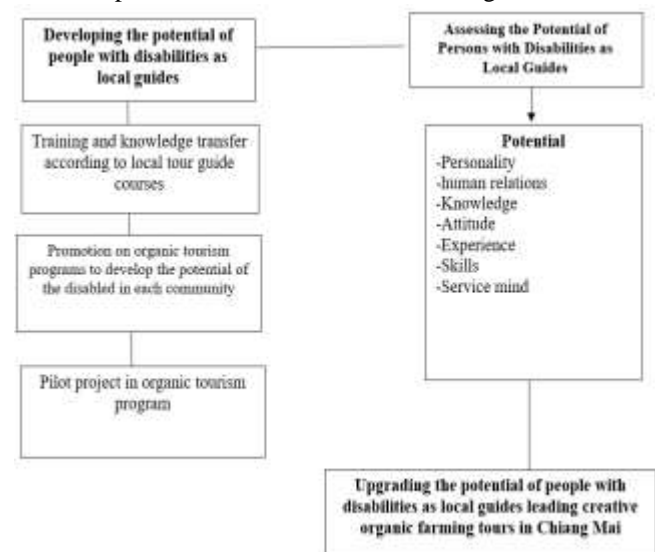
attitudes are not considered competencies but they are part of competence. Therefore, knowledge alone is not a competency, but if knowledge can be applied to create activities until success is considered part of competence. Competency, therefore, refers to the behavior that produces the highest performance, for example, knowledge of driving is considered knowledge, but if it is used to act as a driving instructor and earn, it is considered competence Chatkaew Simarak (2005: 1-3) said that, there are several types of tour guides that have been trained according to the schedule of the Tourism Authority of Thailand such as tour guides who can guide tours for both Thai and foreign tourists

across the country, tour guide only for Thai tourists such as trekking tour guides, marine tour guides, a tour guide in arts and culture, and a tour guides in their local area. It should also be noted that the arrival of tourists are both Thais and foreigners. Tourists may come in 2-3 people or come in groups of 20-30 or 50 people. Tourists are accompanied by a guide from a travel agency. It is a travel of tourists without a tour guide. In the event of tourists visiting the village, the tour company's guides usually lead the tour and tell stories about the village every step of the way. Sometimes the stories told may be inaccurate from the facts, thus giving tourists incorrect information. In fact, villagers should have better knowledge of their villages than tour guides. The villagers did not participate and did not receive the benefits they should have. At present, there are many tourists visiting their villages, so the government has a policy to encourage local people to act as tour guides and explain stories. Local things are given to tourists themselves. In the event that the local guide is unable to communicate the language to foreign tourists, the tour company's guide acts as an interpreter. Language insufficiency is one of the major problems that travel agencies do not wish to hire local guides to operate in this regard because they are not confident in the quality of local guides. Also, there is no law enforcing the hiring of local guides, making hiring a local guide not as popular as it should be. In the future, each locality should have their own knowledgeable guides to welcome tourists either on their own or taking over the tour from the tour operator's guides. Local guides should have the knowledge, skills, and travel planning proficiently. Kattiya Klanthakapakorn (2007: 8) said that the etiquette and ethics of a tour guide should be as follows:

1. Punctuality: Guides should be punctual in all cases such as picking up tourists from their accommodation or dropping off tourists at the airport or destination or scheduling. Timing errors can damage travelers, their assignments, and their companies.
2. Duties and Responsibilities: Guides must be enthusiastic about their assigned duties, treating tourists thoroughly and consistently, non-discrimination, non-expression of boredom and doing one's duty to the fullest potential.
3. Honesty: Guides must be honest with tourists and not see their own interests because it affects the trust of the tourists and the protection of the interests of the tourists in all cases.
4. Accurate information: Guides should explain the correct information to tourists such as not to mention Thailand too pessimistic or flattering, critical opinions on certain topics such as politics and religion should not be expressed as they are extremely sensitive, and providing information that affects the image of Thailand.

5. Behavior and manners: Guides must behave with good manners, not criticizing other guides for tourists, being modest and not being rude to guests because tourists are like our employers, not arguing with customers, not treating tourists in an adulterous manner and any compromise and drugs.

In short, a tour guide is the person who is closest to the tourists. Therefore, it should be prepared by studying the information of tourist attractions and disseminating them to the tourists correctly in order to create an impression on the tourists and convey a good image to the country in the future. The study of literature and related research papers can lead to the conceptual framework as shown in the figure.



IV. RESEARCH METHODS

In short, a tour guide is the person who is closest to the tourists. Therefore, it should be prepared by studying the information of tourist attractions and disseminating them to the tourists correctly in order to create an impression on the tourists and convey a good image to the country in the future. The study of literature and related research papers can lead to the conceptual framework as shown in the figure.

1. Research site

For this research, the researcher selected a research area with a vocational training center for people with disabilities in Chiang Mai which is divided into 5 districts: Chiang Dao District, Mae Taeng District, San Sai District, Chai Prakan District and Doi Lo District.

2. Population and sampling

The population and samples used in this study consisted of:

1. The population was people with disabilities in Chiang Mai, which is divided into 5 districts with 400 people. The

researcher selected a cohort using Taro Yamane (1973:725 cited in Buntham Kitpreedasud, 1997:71). The sampling displacement was set to 0.05. Participant's qualification was voluntary participation in the project using the Simple Random Sampling method.

2. The Purposive Selection method yields the following sample groups:

2.1. 8 persons with disabilities in Muang Khong Community, Mueang Khong Subdistrict, Chiang Dao District

2.2 12 persons with disabilities in Ban Phu Din Community, Mae Ho Phra Subdistrict, Mae Taeng District

2.3 13 persons with disabilities in Chedi Mae Krua Community, Chedi Mae Krua Sub-district, San Sai District

2.4. 7 persons with disabilities in Ban Tap Tao Community, Sri Dong Yen Subdistrict, Chai Prakan District

2.5. 10 persons with disabilities in Santisuk Community, Doi Lo Subdistrict, Doi Lo District

There were criteria for selecting groups as detailed below.

(1) People who have been transferred knowledge of the potential of the disabled to develop into a local guide in a creative organic farming tour in Chiang Mai

(2) People who voluntarily accept and develop their potential to become model guides and service-minded people.

(3) Participants in community activities

3. Research tools

1. The potential assessment tools can be divided as follows:

1.1 The assessment form on the potential of people with disabilities to become local tour guides in organic agriculture in Chiang Mai can be divided into 3 parts.

Part 1: Information of people with disabilities assessors as local guides for organic farming tours in Chiang Mai

Part 2: Level of opinion in assessing the potential of people with disabilities as local organic tour guides in Chiang Mai

Part 3: Suggestions

The opinion level of the potential of the disabled as a local organic tour guide in Chiang Mai was divided into 3 sections.

Likert's rating scale is divided into five levels:

The average of the most opinion levels was 4.50-5.00.

The average of the high opinion level was 3.50 - 4.49.

The average of the moderate opinion level was 2.50 - 3.49.

The average of the low opinion level was 1.50 - 2.49.

The average of the lowest opinion levels was 1.00 - 1.49.

For reliability, the researcher used the questionnaire to collect data with non-sample populations and then analyzed the results for confidence by cronbach's alpha coefficient method (Puangrat Thaweerat, 2000: 125).

4. Methodology

The methods for collecting data consisted of the following research procedures:

1. Development of the potential of people with disabilities as local tour guides in organic agriculture in Chiang Mai had interesting issues as follows:

1.1 Development of the potential of people with disabilities as local guides for organic farming tours in Chiang Mai

1.2 Development of tourism activities within the organic tourism attraction of the disabled in Chiang Mai

2. Building a model for the potential of people with disabilities as local guides for organic farming tours in Chiang Mai

2.1 A pilot project using Participation Action Research (PAR)

2.2 A potential model for people with disabilities as local guides for organic farming tours in Chiang Mai

3. Assessing the potential of 150 people with disabilities as local organic tour guides in Chiang Mai had interesting issues as follows:

3.1 Personal data of persons assessing the potential of people with disabilities as local organic tour guides in Chiang Mai

3.2 The opinion level of the assessment of the potential of people with disabilities as a local organic tour guide in Chiang Mai Province

V. RESEARCH RESULTS

According to research results to improve the potential of people with disabilities as local guides for creative organic farming tours in Chiang Mai, the researcher provided a sample group for assessing the potential of people with disabilities as local organic tour guides as follows:

Step 1: The knowledge transfer of people with disabilities as local guides for creative organic farming tours in Chiang Mai was as follows:

1. Developing the potential of people with disabilities as local tour guides in organic agriculture in Chiang Mai

The researcher had transferred knowledge on the potential development of local tour guides in organic agriculture to 400 disabled people in Chiang Mai. The knowledge transfer of the local tour guide course had the following details:

1) Conveying content in the local tour guide course: General knowledge of guides and tour guides, principles of guides, the art of speaking for guides, personality as a tour guide, roles, duties and responsibilities of the tour guide and organic tourism programs to develop the potential of the disabled groups of each community was considered to create experiences for people with disabilities in organic tourism in the local community. It also included welcoming tourists and being a good host, learning the art of speaking for guides, the process of developing tourism and community service capabilities. All of these enabled people with disabilities to play a role in thinking (planning), doing (executing) and

monitoring, evaluating and expressing opinions, and involvement with other stakeholders.

2) Field Research: The trainees had the opportunity to use the skills and knowledge from the training and lectures as well as various activities and apply them in real practice. The operation started from grouping and selection of tourist attractions by linking agriculture in the community. Then, each group was assigned to study the story and history of the attraction itself and present the attraction according to the principle of a guide. Volunteers were arranged to take part in role-playing roles as tourists. Participants must speak both Thai and English about the attractions in the participant community.

Step 2: Upgrading the potential of people with disabilities as local guides for creative organic farming tours in Chiang Mai

2.1 The researcher selected people with disabilities and targeted areas in Chiang Mai in order to develop the potential of disabled people as local guides, and develop tourism activities within the organic agricultural tourism attraction of the disabled in Chiang Mai in 5 areas, totaling 50 cases as follows:

2.1.1. 8 persons with disabilities in Muang Khong Community, Mueang Khong Subdistrict, Chiang Dao District

2.1.2. 12 persons with disabilities in Ban Phu Din Community, Mae Ho Phra Subdistrict, Mae Taeng District

2.1.3. 13 persons with disabilities in Chedi Mae Krua Community, Chedi Mae Krua Sub-district, San Sai District

2.1.4. 7 persons with disabilities in Ban Tap Tao Community, Sri Dong Yen Subdistrict, Chai Prakan District

2.1.5. 10 persons with disabilities in Santisuk Community, Doi Lo Subdistrict, Doi Lo District

2.2 Participants were assigned to study tourist attractions routes and link to the learning stations for organic agriculture in each area. The aforementioned activities, the research team and groups of people with disabilities in each community must visit the area for meetings on travel routes and explore tourism routes and link them with organic farming in the community as detailed below.

2.2.1. People with disabilities in Muang Khong community, Muang Khong sub-district, Chiang Dao district, which are ready in terms of community-based tourism elements, had participated in the preparation of tourism routes along with discussions and discussions with entrepreneurs, shops, farmers and homestay groups in the community to link community-oriented tourism routes. The identity of Muang Kong community consists of resources, tourist attractions, culture and local wisdom were as follows.

(1) Organic agricultural tourism and activities in Ban Muang Kong, Chiang Dao District, Chiang Mai Province is a diverse ethnic community living together such as Thai Yai, Karen and

Muser, there was a mixed farming system and the development of commerce, handicrafts, industry, folk culture, tourism and communication based on a community economy in accordance with local and community conditions. Local wisdom was used without compromising on environmental quality under the participation of public and private organizations, including the coordination of communities, villages and sub-districts, along with other network organizations. Agricultural activities were provided to tourists by creating learning centers on organic agriculture and natural ways, while focusing on conveying the way of life of the villagers. In addition, there were vegetable gardening and organic farming as the main activities by hosting demonstrations and teaching basic vegetable cultivation methods with an emphasis on the use of locally available materials and equipment. Vegetable gardening and organic farming activities were activities that require tourists to practice growing vegetables in agricultural plots by allocating agricultural plots in front and behind tourist attractions. Most of the vegetables grown in the plot were vegetable garden vegetables for general cooking such as galangal, lemongrass, basil, spring onion, coriander, winged bean and others. These vegetables were quick and easy to grow and can be eaten raw or cooked into a variety of dishes. Cow-raising activity was a morning activity that provides tourists with the opportunity to herd cattle from the stables to the pier and feed them, allowing tourists to enjoy studying the nature around them. Rafting activity was bamboo rafting activity for tourists who like challenging and adventurous activities or want to appreciate and experience nature. Tourists could contact and book this rafting activity directly. Rafting would be accompanied by a local guide who would teach you about attractions and nature. Fishing activity was another activity that allows tourists to visit the villager's way of fishing, especially "Mon fish" which is a rare fish found only in some local areas.

(2) Tourists would experience the uniqueness and variety of activities from staying in Ban Muang Kong. In addition to vegetable growing activities, there were also agricultural activities: farming, cattle raising, rafting and fishing. These activities allowed tourists to learn the lifestyle and culture of the tourist attraction thoroughly. Indeed, sufficiency farming was the foundation of the community's way of life. The accommodation had facilities for tourists such as a parking lot, cell phone and internet signal, as well as a camping ground for tourists in winter as well. Within the accommodation area, there was a shady atmosphere suitable for tourists of all ages, including family travelers. The construction of accommodation to accommodate most tourists came from visiting the farm/garden and liking the atmosphere until wanting to experience it for you. The

operators therefore divided the area to create rooms and camping ground so that tourists could stay according to their preferences. According to the survey, the majority of accommodations consisted of 7 rooms with designs and decorations in harmony with nature. Wood or natural color imitation materials were mainly used. The survey of room design and decoration found that most accommodation focused on creating an atmosphere for tourists to experience nature. The accommodation of each tourist attraction was a comprehensive development of tourist attractions to support and serve tourists efficiently.

(3) Growing rice and vegetables were used for cooking and as a supplementary activity to increase the participation of tourists. In the area near the accommodation, a small kitchen was set up so that tourists could cook for themselves. In addition to local food menus such as Lam by Mon Fish, which uses traditional methods - making a fire and putting Mon fish in a bamboo tube, then seasoning and adding a little water, covering the muzzle of the mole with lemongrass or banana leaves and waiting for it to be cooked before eating. There was also a fresh coffee shop serving tourists throughout the day.

(4) Tourists were taken to visit various occupation groups in the village, including basketry, satchel and woven cloth, and allow tourists to learn by participating in activities and making souvenirs by themselves. This made tourists impressed and promoted community products in another way.

2.2.2 People with disability in Ban Phu Din Community, Mae Ho Phra Subdistrict, Mae Taeng District are models of tourism routes that were ready in terms of tourism components and participation in the construction of community-based tourism routes, there were discussions with entrepreneurs, merchants, farmers and homestay groups in the community to link community tourism routes. Ban Phu Din community had interesting resources, tourist attractions, culture and local wisdom as follows.

(1) Organic farming attractions and activities: Ban Phu Din community had important tourist attractions such as Phu Din Reservoir, Huai Kuk Reservoir and Huai Khang Reservoir, which are the three connecting routes. The area around the reservoir was a large agricultural resource for the community.

(2) Accommodation: Ban Phu Din community had homestays of farmers' groups to accommodate tourists visiting their farm plots.

(3) Food: The homegrown rice and vegetables were used for cooking and were a complementary activity for the participation of tourists. The area near the accommodation had a kitchenette so tourists could cook their own meals. In addition, local dishes such as Larb Pla and Sai Oua were prepared.

(4) Commemorative items included community agricultural products and processed fruits such as mangos and organic rice.

2.2.3 People with disability in Chedi Mae Krua, Chedi Mae Krua Sub-district, San Sai District, Chiang Mai Province are models of tourism routes that were ready in terms of tourism components and participation in the construction of community-based tourism routes, there were discussions with entrepreneurs, merchants, farmers and homestay groups in the community to link community tourism routes. Ban Phu Din community had interesting resources, tourist attractions, culture and local wisdom as follows.

(1) Chedi Mae Krua Community has organic farming attractions and interesting activities such as organic farming areas in the community and honeycomb

(2) Ban Phu Din community built homestays and resorts for farmers' groups for tourists visiting their farm plots.

(3) Making local dishes such as curry om, Khao Soi, Khanom Jeen Nam Ngiao, pork rinds and the Stuffed Dough Pyramid.

(4) Commemorative goods include community agricultural products and processed fruits such as lettuce, organic rice and potato chips.

2.2.4 Disabled people in Ban Tap Tao Community, Sri Dong Yen Subdistrict, Chai Prakan District

(1) Organic farming attractions and community group activities such as learning stations about mushroom cultivation, organic fertilizer, vegetable gardening, cricket breeding, raising Frogs, and planting squash.

(2) Ban Tap Tao Community Handicap Group has homestays and resorts of farmers' groups to accommodate tourists who visit their farms.

(3) Cooking food from the learning base such as the oyster mushroom menu and salad rolls.

(4) Commemorative items include community agricultural products and processed fruits such as lettuce, fairy mushrooms and frog meat.

2.2.5 The disabled group in Santisuk Community, Doi Lo Sub-District, Doi Lo District has the main interesting elements as follows.

(1) Santisuk community has organic farming attractions and important activities such as learning station about growing organic lettuce, fairy mushroom cultivation, and a station for learning about cricket breeding.

(2) Santisuk Community with Disabilities had homestays and resorts for farmers to support tourists who visit their farms.

(3) Making a menu in the learning station such as making salads, mushroom crackers and fried crickets.

(4) Commemorative items included community agricultural products and processed fruits such as lettuce, crickets and fairy mushrooms.

2.3 Development of tourist attractions and development as a tour guide

A group of people with disabilities collaborated with researchers to study information for tourist attraction development and development as a guide. The steps were divided as follows.

2.3.1 Groups with disabilities prepared places, tourist attractions and learning stations by improving the landscape and providing areas and facilities to accommodate tourists. It also installed a sign with a QR code and a Bell sign for tourists with disabilities and improve the landscape and thoroughfare to make it more convenient for tourists and people with disabilities.

2.3.2 Groups with disabilities provide information to explain in detail to tourists and practice their personality in presentations and prepare them for the use of sign language for tourists with disabilities in communication.

2.3.3 Groups with disabilities divide their duties and responsibilities in each learning base and tourist attraction in order to impart accurate knowledge to tourists.

2.4 Tourism activities as a pilot project

The researcher had experimented with tourism activities by creating an organic agricultural tourism program to develop the potential of the disabled groups of each community. At this stage, a pilot tour would be organized to test the readiness of the community by inviting individuals or outside agencies that had experience or involvement with organic tourism to provide them with their opinions and suggestions as follows:

2.4.1 The handicapped group in Muang Khong Community, Mueang Khong Subdistrict, Chiang Dao District, Chiang Mai Province. A group of tour guides from Ban Muang Kong offered a 2-day and 1-night package tour program. The group of guides had divided the duties of taking tourists to visit the sites and giving information about 5 tourist attractions. Each place had a group of about 5-10 guides. Tourist attractions could be divided into: 1) Natural attractions such as Chiang Dao Cave and Wat Pha Plong 2) Taking tourists to accommodation and dining 3) Activities in organic farming such as farming and vegetable gardening 4) Rafting activity 5) Bringing tourists to visit the souvenir shops of the community.

2.4.2 Ban Phu Din Community Handicapped Group, Mae Ho Phra Subdistrict, Mae Taeng District, Chiang Mai Province. A group of tour guides from Ban Muang Kong offers a 2-day and 1-night package tour program. Groups of tour guides shared duties to guide tourists to visit places and give information about 3 tourist attractions. Each site divided the guides into two groups and took them on a one-day tour of each tourist group. In this place, the focus was on community-based organic farming learning stations, including: 1) Tourism in community organic farming plots 2) Activities in the production of inputs 3) Collecting produce in agricultural plots 4) Taking tourists to the accommodation 5)

Planting trees for the community 6) Taking tourists to visit the souvenir shop of the community.

2.4.3 People with Disabilities Chedi Mae Krua Community, Mae Faek Mai Subdistrict, San Sai District, Chiang Mai Province. A group of tour guides from Ban Muang Kong offered a package tour of 1 day and 1 night. The group organized activities under “Khuang Insee Chedi Mae Krua” to present tourism routes and good organic products in the community. Groups of tour guides were assigned at each point to guide and give information about tourist attractions, including: 1) Community-oriented organic farming tour 2) Harvesting of crops in agricultural plots 3) Learning station about cooking from organic farms 4) Taking tourists to visit the souvenir shop of the community.

2.4.4 The handicapped group of Ban Tap Tao Community, Sri Dong Yen Subdistrict, Chai Prakan District, Chiang Mai Province. Guide groups offered 3 day and 2 night package tours. The activities organized were as follows: 1) Learning Station on Mushroom Cultivation 2) Learning station for making organic fertilizer 3) Learning station for growing vegetables in the kitchen garden 4) Learning station on cricket breeding 5) Learning Station on Raising Frogs 6) Cultivation of momordica.

2.4.5 Disabled people in Santisuk Community, Doi Lo Subdistrict, Doi Lo District, Chiang Mai Province. Guide groups offered 3 day and 2 night package tours. The activities organized were as follows: 1) learning station 2) Cultivation of organic lettuce 3) Fairy Mushroom Cultivation 4) Learning station about cricket breeding. Bringing tourists to group accommodation and cooking the produce from the learning station

Step 3: The results of the assessment of the potential of people with disabilities as local guides for organic farming tours in Chiang Mai. The researcher collected data of people with disabilities as local guides on organic farming tours in Chiang Mai from a tourism program experiment with role-playing tourism. The evaluation results were as follows:

Gender: Most of the samples were 50 female (33.3%), followed by 100 male (66.7%).

Age: Most of the samples were 73 people aged 20-29 years old (48.6%), followed by 46 people aged 30-39 years old (30.6%), 15 people aged 50-59 years old (10%), 11 people aged 40-49 years old (7.3%), more than 60 years old of 4 people and 1 people and less than 20 years old of aged 1 people (0.6%).

Status: Most of the samples were 124 single (82.6%), followed by 26 (17.33%) marital status.

Education level: Most of the sample group graduated with a bachelor's degree of 97 (64.6%), followed by 46 students with

less than a bachelor's degree (30.6 percent), 4 other studies (2.6%), and 3 postgraduate education (2.0%).

Average monthly income: Most of the sample group had income of 15,001 or more, 68 people (45.3 percent), followed by income between 10,001-15,000 baht, 65 people (43.3 percent), Income between 5,001- 10,000 baht for 15 people (10.0 percent), and income less than 5,000 baht for 2 people (1.3%).

Table 1 The results of the assessment of the potential of people with disabilities as local organic tour guides in Chiang Mai in terms of personality

Topic	Average (\bar{x})	Standard Deviation (S.D)	Comment level
Cheerful	3.88	0.75	High
Clean and neat	4.81	0.39	Highest
Thai good manners such as being polite and humble	4.11	0.69	High
Originality	4.65	0.62	Highest
Tact	4.77	0.63	Highest
Meticulous in working	4.39	0.70	High
Agility in the performance of duties	3.69	0.82	High
Honesty	3.73	0.84	High
Commitment to work	4.16	0.89	High
Perseverance, diligence and patience in work	3.87	1.08	High
Total	4.20	0.26	High

As in the table of the results of the assessment of the potential of people with disabilities as a local organic tour guide in Chiang Mai Province, the overall personality score was high (\bar{x} = 4.20, S.D. = 0.26) Considering each aspect, it was found that the tact was high (\bar{x} = 4.77, SD = 0.63), followed by creativity (\bar{x} = 4.65, SD = 0.62) and dexterity in the performance of duties (\bar{x} = 3.69., SD = 0.82).

Table 2 The results of the assessment of the potential of people with disabilities as local organic tour guides in Chiang Mai in terms of human relations

Topic	Average (\bar{x})	Standard Deviation (S.D)	Comment level
Adapting to others	3.45	1.0	Moderate
Liaison with others	3.18	0.92	Moderate
Emotional control	3.72	0.88	High
Being a good speaker and listener	3.87	0.70	High
Accepting the opinions of others	4.75	0.43	Highest
Sincerity in relationships with others	4.07	0.70	High
Forgiving and giving opportunities to colleagues	3.98	1.0	High
Total	3.85	0.29	High

As in the table of the results of the assessment of the potential of people with disabilities as a local organic tour guide in Chiang Mai Province, the overall human relations score was high (\bar{x} = 3.85, S.D. = 0.29) When considering each aspect, it was found that the acceptance of the opinions of others was high (\bar{x} = 4.75, S.D. = 0.43), followed by the sincerity in relationship with others (\bar{x} = 4.07, S.D. = 0.70), and the ability to coordinate with others (\bar{x} = 3.18, S.D. = 0.92).

Table 3 The results of the assessment of the potential of people with disabilities as local organic tour guides in Chiang Mai in terms of knowledge

Topic	Average (\bar{x})	Standard Deviation (S.D)	Comment level
Basic knowledge of speaking, reading and writing Thai and English well	2.83	0.85	Moderate
Knowledge and understanding of outdoor recreation principles	4.18	0.97	High
Knowledge of general principles applicable to tourists	2.93	1.08	Moderate
Knowledge of service business	3.54	0.91	High
Concern on how to use new technology to benefit tourism management	2.14	0.89	Low
Introduction and transfer of knowledge about places and methods of traveling	3.48	0.96	Moderate
Leadership in recreational activities to entertain tourists	3.87	0.74	High
Control of recreational activities to serve tourists	3.91	0.79	High
Knowledge and understanding of nature and history of tourist attractions	3.44	0.90	Moderate
Total	3.36	0.36	Moderate

As shown in the table of the assessment results of the potential of people with disabilities as a local organic tour guide in Chiang Mai, in terms of overall knowledge, scores were at a moderate level (\bar{x} = 3.36, S.D. = 0.36) When considering each aspect, it was found that knowledge and understanding of outdoor recreation (\bar{x} = 4.18, S.D. = 0.97), followed by the ability to control recreational activities for tourist services (\bar{x} = 3.91, S.D. = 0.79), and knowledge and understanding of how to use new technologies for the benefit of tourism management (\bar{x} = 2.14, S.D. = 0.89).

Table 4 The results of the assessment of the potential of people with disabilities as local organic tour guides in Chiang Mai in terms of attitude

Topic	Average (\bar{x})	Standard Deviation (S.D)	Comment level
Job satisfaction	4.33	0.72	High
Love and faith in the profession of a tour guide	4.15	0.92	High
Career integrity	4.66	0.55	Highest
Intention to create a good image for the organization	4.79	0.55	Highest
Kindness to others	4.89	0.37	Highest
Optimism	4.15	0.92	High
Focusing on serving others	4.65	0.55	Highest
Total	4.51	0.38	Highest

As shown in the table of assessment results of the potential of people with disabilities as local tour guides in organic agriculture in Chiang Mai, the overall attitude scores were at the high level (\bar{x} = 4.51, S.D. = 0.38), When considering each aspect, it was found that compassion towards others was high (\bar{x} = 4.89, S.D. = 0.37), followed by the intention to create a good image for the organization (\bar{x} = 4.79, S.D. = 0.55) and optimism and love and faith in the career of a tour guide (\bar{x} = 2.14, S.D. = 0.89).

Table 5 The results of the assessment of the potential of people with disabilities as local organic tour guides in Chiang Mai in terms of experience

Topic	Average (\bar{x})	Standard Deviation (S.D)	Comment level
Knowledge of tourist attractions	4.50	0.70	Highest
Other tips to add to the description of tourist attractions	4.60	0.67	Highest
Knowledge of various regulations about tourist attractions, government offices and other related places	4.79	0.52	Highest
Knowledge and understanding of outdoor recreation principles	4.09	0.90	High
Knowledge and understanding of tourism business	3.79	0.87	High
Total	4.35	0.35	Highest

As in the table of the results of the assessment of the potential of people with disabilities as a local organic tour guide in Chiang Mai, the overall experience had a high score (\bar{x} = 4.35, S.D. = 0.35). When considering each aspect, it was found that the knowledge of regulations regarding tourist attractions, government offices and other related places was high (\bar{x} = 4.79, S.D. = 0.52), followed by other tips to enhance the description of tourist attractions (\bar{x} = 4.60, S.D. = 0.67) and understanding of outdoor recreation principles (\bar{x} = 4.09, S.D. = 0.90).

Table 6 The results of the assessment of the potential of people with disabilities as local organic tour guides in Chiang Mai in terms of skills

Topic	Average (\bar{x})	Standard Deviation (S.D)	Comment level
Lecture skills in Thai	3.69	0.60	High
Skills in speaking local languages such as northern, hill tribe and Isan languages	4.89	0.36	Highest
Foreign language speaking skills in ASEAN	1.28	0.60	Lowest
Face problem solving	3.21	0.86	Moderate
Tourist service skills	4.15	0.71	Highest
Skills in conveying information to tourists	3.53	0.69	High
Total	3.45	0.28	Moderate

As shown in the results of the assessment of the potential of people with disabilities as a local organic tour guide in Chiang Mai in terms of skills, the overall score was high (\bar{x} = 3.45, S.D. = 0.28). When considering each aspect, it was found that

speaking skills in local languages such as Northern, Hill Tribe and Isan languages were high (\bar{x} = 4.89, S.D. = 0.36), followed by tourist service skills (\bar{x} = 4.15, S.D. = 0.71), and foreign language speaking skills in ASEAN (\bar{x} = 1.28, S.D. = 0.60).

Table 7 The results of the assessment of the potential of people with disabilities as local organic tour guides in Chiang Mai in service mind

Topic	Average (\bar{x})	Standard Deviation (S.D)	Comment level
S = Smiling & Sympathy is a smile and great attention to customers.	4.10	0.97	High
E = Early Response is to respond quickly to customer needs.	3.85	1.14	High
R = Respectful is an expression of respect and dignity for customers.	4.21	0.95	High
V = Voluntariness Manner is a voluntary and willing service.	4.19	0.73	High
I = Image Enhancing is creating and maintaining a good image of yourself and your organization	3.54	0.91	High
C = Courtesy means good-natured, well-mannered and courteous.	4.79	0.55	Highest
E=Enthusiasm is service enthusiasm	2.14	0.89	Low
Total	3.83	0.40	High

As shown in the table of the assessment results of the potential of people with disabilities as a local organic tour guide in Chiang Mai Province in service mind, the overall score was high (\bar{x} = 3.83, S.D. = 0.40). When considering each aspect, it was found that C=Courtesy was a high level of good-naturedness, good manners and politeness (\bar{x} = 4.79, S.D. = 0.55), followed by, R=Respectful was respect and dignity to the customer (\bar{x} = 4.21, S.D. = 0.95), and E=Enthusiasm was service enthusiasm (\bar{x} = 2.14, S.D. = 0.89).

VI. DISCUSSIONS

The results of potential development of people with disabilities as local guides for organic farming tours in Chiang Mai could be discussed as follows:

1. The results of the research on the opinions on the potential of people with disabilities as local organic tour guides in Chiang Mai found that the attitude scores were at the highest level, followed by experience, personality, interpersonal relations, service mind, skill and knowledge respectively. The potential development of people with disabilities as local organic tour guides in Chiang Mai showed that people with disabilities had a positive attitude towards working as local tour guides. Consistent with Kittiya Ratanakorn (1988) said that people with disabilities that the people with disabilities would like to do work that they were interested in or enjoyed and that could be done using their energy and abilities and

people with disabilities needed work that they could accomplish because it gave them confidence and they felt they contributed to the prosperity of their community and society and a sense of satisfaction in their work.

2. The potential development of people with disabilities as local organic tour guides empowers people with disabilities to build self-confidence in the sense that they could accomplish their jobs. It developed a person's feelings by building beliefs to give practitioners confidence in themselves that they were capable of completing tasks. This definition was to develop a person's sense of belief in the development of a person's potential and to encourage a person's ability to work and solve problems on their own. In line with Khattaphan Chumnuson and Teerasak Un-rom-lert (2016) which was a research study on the development of a model for enhancing self-management abilities of people with disabilities for sustainable self-reliance. It was found that the model for enhancing self-management abilities of persons with disabilities for sustainable self-reliance consisted of 5 components: 1) occupation 2) learning 3) facility technology 4) self-care and 5) empowerment.

VII. CONCLUSION

1. The development of the potential of people with disabilities as local tour guides should be continually developed and expanded to other areas in Chiang Mai.
 2. Development of the potential of people with disabilities as local tour guides should develop knowledge and service skills in order for the disabled to develop and gain more expertise.
 3. Development of the capacity of people with disabilities as local tour guides in other areas such as knowledge skills, tourism program planning and language skills should be studied in order to prepare for accommodating foreign tourists.
 4. Factors affecting people with disabilities to become local tour guides should be studied as a guideline for further development of the potential of the disabled.

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Factors Influencing Dietary Behavior of Pregnant Women in a Private Hospital in Bangkok

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Abstract— The purpose of this predictive research was to study the level of dietary behavior of pregnant women, and to study the predictive factors of food consumption behavior of pregnant women. The sample consisted of 272 pregnant women who came for antenatal care at the antenatal care department in Navaminthra 1 Hospital, Bangkok. The tool used for collecting data was 7 questionnaires. The content validity of all tools was verified by 5 experts. The validity of the assessment tools 2-6 was checked using Cronbach's alpha coefficient, and the validity values were 0.83, 0.81, 0.93, 0.84, and 0.90 respectively. The seventh questionnaire was tested using the Kuder-Richardson method (KR-20) and the reliability was 0.87. The data were analyzed using frequency distribution, percentage, mean and standard deviation. Predictive factors were analyzed using multiple regression statistics. The results showed that the dietary behavior of pregnant women had a high mean score ($M = 70.01$, $S.D. = 7.13$). The predictive co-factor of food consumption behavior could be determined by ordering the variables that could be predicted highest to lowest in the following order: perceived dietary benefits, nutritional social support, self-efficacy in food consumption, beliefs about food intake, and dietary knowledge of pregnant women. The co-factor was 77 percent ($R^2 = .77$, $p < .01$). The results of this research could be used as a baseline to develop a model for promoting appropriate dietary behavior among pregnant women.

Keywords— food consumption behavior, factors, pregnant woman

I. INTRODUCTION

In 2017, the pregnancies of women of childbearing age in Thailand had a fertility rate per 1,000 female population or approximately 656,517 (19.80%) (Ministry of Public Health, 2018). Pregnancy is a normal condition for women of childbearing age. During pregnancy, women undergo physical changes such as anatomy, physiology and biochemistry. Changes begin with conception and continue throughout pregnancy, including psychological changes and changes in maternal roles. These changes may affect the behavior of pregnant women during pregnancy¹. Pregnant women may have inappropriate health behaviors during pregnancy, such as consuming food while pregnant; their body needs more energy and nutrients than normal². Good nutrition is important for the health of a pregnant woman and her unborn child. A woman's adequate nutrition before pregnancy is essential for the development of the baby's body, brain and nervous system from conception to postpartum. Pregnant women need an extra 300 kcal of energy per day, especially during the second and third trimesters of pregnancy. Energy nutrients include

carbohydrates, proteins and fats. If women in the pre-pregnancy period and during pregnancy have unhealthy dietary habits or are not getting enough nutrients to meet the body's needs, it may result in less weight gain during pregnancy, and are more prone to complications than healthy pregnant women. Common complications such as anemia and infectious diseases in early pregnancy can lead to miscarriage, slow fetal growth and premature birth. It may also contribute to adverse reactions such as preeclampsia and gestational diabetes³, infertility at risk of using operative obstetrics for assisted delivery, late return to normal in the postpartum period, increased risk of postpartum hemorrhage, baby died at birth, slower than normal baby's physical and mental growth and development, baby is underweight, cardiovascular disabilities⁴, and infant iron and iodine deficiency. A recent survey found that pregnant women have a lot of iron deficiency anemia. Pregnant women who are underfed may be at risk for malnutrition. The effects on the baby are slow fetal growth, preterm birth and low birth weight⁵, and the effect on the mother is that the mother's milk is not enough to feed the baby after birth⁶. The best natural food for raising babies is "mother's milk" and is considered to be the most beneficial for the growth and development of the baby both physically and

mentally. Breast milk is a special and easily digestible form of baby food. Breastfed babies have an advantage over formula-fed babies in terms of better overall health (Kaiser P., 1995).

Nurses play an important role in promoting the health of pregnant women as a guideline for promoting good health during pregnancy, an increase in body weight in each trimester of pregnancy, and prevention of risks and reducing complications that may occur in pregnant women and fetus. This is to achieve the best possible outcomes for pregnancy⁷. COVID-19 is an emerging disease in 2019 and there is no data on mothers who are infected during the first 3–6 months of pregnancy, but there are data on mothers who were infected during the last 3 months before giving birth. Therefore, experts initially concluded that the infection was most likely caused by exposure to droplets, but it's not caused by vertical transmission. Mothers can still breastfeed by wearing a mask, washing their hands properly with soapy water for 20 seconds or using 70% alcohol. More importantly, they need to focus on social distancing. Thailand and the Department of Health, Ministry of Public Health, recommend that suspected mothers and infected mothers can breastfeed their babies by strictly following the aerosol transmission prevention guidelines⁸.

There are many factors related to food consumption behavior. The researchers used Pender⁹'s health promotion theory as the basis for this study. Food consumption behavior is part of health promotion behavior. According to Pender's theory, perceived benefits of action influence the health-promoting behaviors. Individuals have anticipation of the benefits that will be gained after the behavior, thus motivating the individual to perform the behavior. Perceived self-efficacy directly and indirectly affects the behavior, which creates a commitment to the behavior. Interpersonal Influences are perceptions related to another person's behavior, beliefs, or attitudes that influence a person's thoughts. The main sources of interpersonal influence on health promotion behaviors are family (father, mother or relatives), friends and health care workers, which affect good health promotion.

According to a review of the literature on health promoting behaviors among pregnant women, there are also several factors that may affect consumption behavior in pregnant women such as consumption behavior. In addition, the study of nutrition self-care behavior among pregnant women found that the pregnant women had moderate nutritional self-care behaviors and those with gestational age greater than 28 weeks had significantly better nutritional self-care behaviors than the 14-28 weeks gestational age group¹⁰. According to the study of predictive factors of nutrition health promotion behavior of adolescent pregnant women, it was found that adolescent pregnant women had high nutritional health

promotion behaviors. All variables studied included perceived barriers to nutritional health promotion, self-efficacy in nutritional health promotion and social support. 38.80% of the variability in nutrition health promotion behavior of adolescent pregnant women could be explained. Perceived barriers to nutritional health promotion and self-efficacy in nutritional health promotion were statistically significantly predictive of the health promotion behaviors of adolescent pregnant women¹¹. Consistent with research on consumption, habits and nutritional status of pregnant women: a case study of Nakhon Chum Sub-District Health Promoting Hospital, Kamphaeng Phet Province, it was found that pregnant women had good consumption (27.40%). When estimating the birth weight, the majority of newborns weighed more than 3,000 grams (72.7312 percent).

A 2016 study in western China found that rural pregnant women ate rice, vegetables and fruits as their staple food. Compared to national guidelines, they consumed less milk, nuts, fish products and nuts. Rural pregnant women had different dietary habits during their pre-pregnancy and during pregnancy. Compared to pre-pregnancy, women prioritized breakfast during pregnancy ($P < 0.05$). Although the behavior of smoking, drinking alcohol, and eating fried food were infrequent ($P < 0.05$), but some were still present. The dietary behavior of pregnant women depends on behavioral intentions (standard regression coefficient is 0.435). Behavioral attitudes and subjective norms influence dietary behavior and influence behavior and intentions (Standard regression coefficients are 0.268 and 0.524). It could be concluded that the dietary consumption of rural pregnant women in poor areas of western China is irrational in terms of consumption. Their dietary habits are the result of their own attitudes and personal norms. Measures should also be taken to adjust the dietary habits of pregnant women in rural western China.¹³

In this study, the researchers examined factors that correlate or predict dietary behaviors or affect health-promoting behaviors in pregnant women in order to develop a dietary behavior promotion program in pregnant women. According to the Pender⁹ health promotion theory study, the following factors could be summarized as: (1) Perceived benefits of food consumption (2) Social support in food consumption (3) Self-efficacy in food consumption (4) Belief in food consumption (5) Knowledge of food consumption. Such factors were explained as follows. The perceived benefit factor¹⁴, perceived benefits would directly and indirectly motivated behavioral health through Pender's commitment to decision-making⁹. The social support factor¹⁵ was the perception that one's own social network supports material, information, knowledge, exemplary and observational

learning. This may affect the health behaviors⁹. Self-efficacy⁹ was a consideration of one's abilities. When awareness of one's skills or abilities leads to motivation for individuals to be the good health behaviors⁹ and belief factor¹⁶, pregnant women who have inherited dietary beliefs were more likely to dietary behaviors based on that belief, and dietary knowledge of pregnant women¹⁷. When person gains knowledge, it would make pregnant women understand and affect good behavior. Therefore, knowledge was the predisposing factors important to behavior¹⁸.

The researcher would like to study the factors influencing dietary behavior of pregnant women in a private hospital in Bangkok. Dietary intake is one of the factors that keep pregnant women and their unborn babies healthy, as well as preventing risks and complications. These factors can be used to prevent or further promote dietary behavior in pregnant women. The factors included in the study consisted of various factors such as perceived dietary benefits, social support in nutrition, self-efficacy in food consumption, belief in food consumption, and knowledge of food consumption. This is to be used as a guideline for developing and using as a basis for planning nursing care for health personnel, including the creation of a suitable pattern for pregnant women to prevent complications during pregnancy and after the birth of mothers and babies.

II. RESEARCH OBJECTIVES

The purpose of this predictive research was to study the level of dietary behavior of pregnant women, and to study the predictive factors of food consumption behavior of pregnant women.

III. LITERATURE REVIEW

In this study, the investigators selected some factors based on health promotion theory and additional literature reviews. The researcher selected factors related to food consumption behavior and factors related to health promotion behavior. Food consumption behaviors were part of health promotion behaviors as detailed below.

1. *Perceived benefits of food consumption*

Perceived benefits influence health promotion behavior. Individuals are expected to benefit after the motivated behaviors internally and externally until the individual is motivated to perform the behavior and continue to do so. Perceived benefit refers to the perception and conception of performing the behavior with regard to the expected consequences. The definition of perceived dietary benefits can be summarized as: recognizing the value of dietary

behavior and understanding the benefits of food consumption can have a positive effect on one's health and fetus.

2. *Nutrition Social Support*

The co-factor of social support is an important factor in behavior because people's daily life must be social and interacts with many people or support, chat, receive information from close people, including healthcare professionals. Social influences influence behavioral practices, including dietary or health-promoting behaviors in pregnant women. Social support, whether from family or healthcare professionals, has an impact on health-promoting behaviors. Social support can affect the consumption behavior of pregnant women.

3. *Self-efficacy in food consumption*

Perceived self-efficacy has both direct and indirect behavioral effects that induce commitment to established behavioral practices, including dietary behavior and other health-promoting behaviors of pregnant women. Self-efficacy induces a person's self-confidence in performing actions or behaviors. It is about a person's confidence in their ability to manage and behave under the barriers or conditions that lead to healthy behavior.

3. *Self-efficacy in food consumption*

Perceived self-efficacy directly and indirectly affects behavioral performance, which induces commitment to performing intended behavior. It also includes dietary habits and other health-promoting behaviors of pregnant women. Self-efficacy leads to a person's self-confidence and is consistent with their personal beliefs about their ability to manage and behave under various obstacles or conditions for health promotion.

4. *Beliefs in food consumption*

Beliefs affect the behavior of Thai people in society, including beliefs about food consumption. Belief means passing on knowledge, ancestors' telling, learning and observing, leading to practices passed down from generation to generation. Belief has been defined as accepting things, regardless of whether they are verifiable or not, but as adherence to the beliefs that have been passed down from generation to generation. However, dietary beliefs are accepted and believed to be true.

5. *Knowledge of food consumption*

Knowledge is the basis of thinking through the accumulation of experience. The learning is understood and can be used to make decisions for any action, including dietary habits. Dietary awareness has been defined as the perception and understanding of dietary information about the benefits and

contraindications of practice during pregnancy. This makes it possible to have the correct dietary habits.

IV. RESEARCH METHODS

The population in this study was pregnant women.

Samples were pregnant women who are antenatal care at the antenatal care department in Navaminyhra 1 Hospital, Bangkok. Data was collected after being certified for human research ethics. The researcher applied the purposive sampling method based on the inclusion criteria as follows:

1. Over 20 years old, not over 35 years old
2. 4 months of gestation
3. No complications
4. Pregnancy, both the first and the latter
5. Able to read and understand Thai language
6. No psychotic symptoms and perception of person, time and place
7. Consent to participate in the research

The sample size determination procedure could be performed using Daniel's formula (2010) at 95% confidence level and an error of 0.05. The number of samples was 243 people. The researchers then adjusted the sample number by 12% to prevent sample loss during the research. Therefore, 272 pregnant women older than 20 years but not over 35 years old and more than 4 months of pregnancy are needed.

Data Collection Tools

Factors influencing dietary behavior of pregnant women in a private hospital in Bangkok were predictive research. Therefore, the research instruments consisted of seven questionnaires as detailed below.

Set 1: The personal data questionnaires included age, current gestational age, number of pregnancies, pre-pregnancy weight, current weight, height, body mass index, status, education level, occupation, income, religion, adverse reactions during pregnancy, and complications during pregnancy

Set2: The food consumption behavior questionnaire was a questionnaire derived from the food consumption behavior questionnaire.

Set 3: The perceived dietary benefit questionnaire was a questionnaire obtained from the perceived dietary benefit questionnaire.

Set 4: The Nutritional social support questionnaire was a questionnaire derived from the nutritional social support questionnaire.

Set 5: The food self-efficacy questionnaire was a questionnaire derived from the self-consumption perception questionnaire.

Set 6: The dietary beliefs questionnaire was a questionnaire derived from the dietary beliefs questionnaire.

Set 7: The dietary knowledge questionnaire was a questionnaire derived from the dietary belief questionnaire.

Statistics used in data analysis

The researcher analyzed the data by using a ready-made computer program as detailed below.

1. The personal data of pregnant women and their dietary habits were analyzed using frequency, percentage, mean and standard deviation distributions.
2. Multiple regressions was performed using one dependent variable and two or more independent variables by inserting all variables in the equation to analyze the predictive power of the dietary benefit variables, nutritional social support, self-efficacy in food consumption, dietary beliefs, and knowledge of food consumption on dietary behavior of pregnant women. All variables were tested for preliminary agreement before multiple regression analysis.

V. RESEARCH RESULTS

Table 1 shows the results of the minimum-maximum score, mean, standard deviation, number and percentage of pregnant women's dietary habits can be classified according to the dietary behavior score of pregnant women, it was found that most of the pregnant women had a high score or a score of 65-88 scores of 227 (83.50 percent), not less than 80%, and pregnant women had a moderate score or a score of 44-64, only 45 (16.50%). They also found that the highest score of pregnant women's dietary habits was 85, the lowest was 49, and the mean score was 70.01 (SD 7.13).

Table 1 shows the minimum-maximum values, mean, standard deviation, number and percentage in dietary habits of pregnant women.

Variable	Min	Max	M	SD	Level			
					Moderate		High	
					Number	%	Number	%
Food consumption behavior	49	85	70.01	7.13	45	16.50	227	83.50

Spearman rank correlation coefficient analysis of factors influencing dietary habits of pregnant women, it was found that the perceived benefit in food consumption ($r=.72, p<.01$), nutrition social support ($r=.54, p<.01$), self-efficacy in food consumption ($r=.59, p<.01$), dietary beliefs ($r=.61, p<.01$), and knowledge of food consumption ($r=.35, p<.01$) were related. Table 2 shows the relationship between perceived dietary benefits, nutrition social support, self-efficacy in food consumption, dietary beliefs, knowledge of food consumption, and dietary habits of pregnant women.

Table 2 shows the relationship between perceived dietary benefits, nutrition social support, self-efficacy in food consumption, dietary beliefs, knowledge of food consumption, and dietary habits of pregnant women.

Variable	1	2	3	4	5
1. Perceived dietary benefits	1.00				
2. Nutrition social support	.368**	1.00			
3. Self-efficacy in food consumption	.501**	.625**	1.00		
4. Dietary beliefs	.644**	.091	.126*	1.00	
5. Knowledge of food consumption	.215**	.010	.013	.408**	1.00
6. Dietary habits	.719**	.537**	.591**	.613**	.354**

**p<.01, *p<.05

VI. DISCUSSIONS

Dietary behavior of pregnant women

In a study on dietary habits of pregnant women, it was found that most of the pregnant women had a high score or a score of 65-88 scores of 227 (83.50 percent), not less than 80%, and pregnant women had a moderate score or a score of 44-64, only 45 (16.50%). They also found that the highest score of pregnant women's dietary habits was 85, the lowest was 49, and the mean score was 70.01 (SD 7.13). It could be seen that almost all pregnant women had a high average score for dietary habits and only some had a moderate average score. Moreover, pregnant women had the highest scores and the average scores were quite high. All these results may be due to the fact that the hospital's antenatal department (nurse and nutritionist team) provides health education knowledge about gestational nutrition for all pregnant women. The content covered the following issues: 1) Nutrients that should be taken during pregnancy 2) The amount of food that should be consumed during pregnancy 3) The benefits of consuming each type of food and 4) Foods or beverages that should not be consumed during pregnancy. It also combined methods and techniques to enhance knowledge: model, face-to-face, role playing and verbal processes. These methods inevitably resulted in the mean scores of the pregnant women's dietary habits.

Factors affecting dietary habits of pregnant women

In a study of factors affecting dietary habits of pregnant women, it was found that, the perceived benefit in food consumption ($r=.72$, $p<.01$), nutrition social support ($r=.54$, $p<.01$), self-efficacy in food consumption ($r=.59$, $p<.01$),

dietary beliefs ($r=.61$, $p<.01$), and knowledge of food consumption ($r=.35$, $p<.01$) could be used to predict dietary behavior of pregnant women. It could be used to predict the 77 percent combined outcome ($R^2=.769$, $p<.01$). In a sequence of predictive variables, factors affecting dietary behavior of pregnant women according to the highest-lowest values, it was found that all variables such as perceived dietary benefits ($\beta=.46$, $p<.01$), nutrition social support ($\beta=.38$, $p<.01$), self-efficacy in food consumption ($\beta=.23$, $p<.01$), dietary beliefs ($\beta=.16$, $p<.01$), and knowledge of pregnant women's dietary intake ($\beta=.12$, $p<.01$) could be used to predict dietary behavior of pregnant women based on the highest-lowest scores. Such results could be described as follows.

1. Perceived benefits in food consumption

In a study on perceived dietary benefits, it was found that perceived dietary benefits could explain variability in dietary behavior ($\beta=.46$, $p<.01$). Perceived benefit is a person's belief with the expectation of the benefit after an improved health-promoting behavior (Pender, 2006)⁹. Pregnant women who are aware of the benefits of health promotion have healthy behaviors, that is, they pay attention to appropriate activities such as intention to make food choices¹⁹.

The results of this research study were consistent with the study by Suwannee (2010). It was found that perceived dietary benefit was not a predictive co-factor of dietary behavior among 35-year-old pregnant women. However, perceived dietary benefits were moderately correlated with dietary behavior among adolescent pregnant women, although dietary behavior was not predictive. In contrast, the results of the study were different from Wiraya's study (2010)¹⁴. It was found that perceived benefit was predictive of dietary behavior among higher education students ($\beta=-.13$, $p<.05$). This is because the differences in the samples resulted in different results. This study used a sample of adolescent pregnant women who lacked knowledge and experience. A study by Chalermpon and Pannee (2012)²⁰, it was found that after training in a health education program that educates about the benefits of proper diet, pregnant women had good eating practices. In the last study, most of the pregnant women were between the ages of 26-35 and their education was at a bachelor's degree. However, in this study, the sample was adolescent pregnant women who were aged between 17-19 years and had the highest level of education in lower secondary school. During this age, pregnant women have to adjust a lot in many matters including activities that may affect diet such as disregard of nutritional value or not eating on time (Hathaikan and Amporn, 2007)²¹. Moreover, the level of education indicated the development of knowledge and competence in life that results in knowledge,

understanding and awareness of the value of food consumption (Sribang-On, 2012)²². Pregnant women with varying levels of education contributed to ignorance of the benefits of dietary intake. Consequently, perceived dietary benefits could not predict dietary behavior.

2. Nutrition Social Support

In a study on nutritional social support, it was found that nutritional social support could explain variability in dietary behavior ($\beta=.38, p < .01$). The results showed that pregnant women who received family or husband support were more likely to have good dietary habits. Pender (Pender, 2006)⁹ stated that social support had a greater impact on health-promoting behaviors, support from family members such as caring, kind words, or providing useful food (Anya, Anchalee and Sanya, 2011)²³, providing support and encouragement, as well as giving advice, resulted in more positive behaviors for pregnant women (Nathanong, 2011)²⁴. According to this study, the majority of pregnant women were marital and lived with their husbands and helpers (96.70 percent), allowing them to be well cared for by their family members. Moreover, pregnant women were aware of the care and attention of the antenatal care nurses or related personnel for information, thus giving them the knowledge and guidance to take proper care of themselves in regards to dietary intake. It could be seen that social support had a significant effect on the dietary behavior of pregnant women. The results of this study were consistent with the study of Suwannee (2011)²⁵ found that factors predicting the nutritional health promotion behavior of pregnant women over 35 years were perceived barriers, self-efficacy, and social support. 47.2 percent of nutritional health promotion behaviors were predicted. In addition, Sri Bang-on's study (2012)²² also found that after the elderly received a social support program, there was a statistically significant increase in mean cognition, social support, and health-promoting behaviors. Social support programs run by the Elder's Leadership for Health Promotion could be implemented in similar contexts for behavior modification for health promotion for the elderly.

3. Self-efficacy in food consumption

In a study of food self-efficacy, it was found that food self-efficacy could explain variability in dietary behavior ($\beta=.23, p < .001$). Bandura (1997)²⁶ believed that human behavior required an analysis of conditions and stimuli resulting from the learning process of many components. As a combination of genetics, social environment, experiences and individual abilities, it was difficult to determine whether a behavior was caused by one particular thing. If individuals had self-efficacy and expectations of the outcome of the practice, they would exhibit that behavior to achieve the

desired goal²⁷. In addition, Pender's concept (Pender, 2006)⁹ stated that self-efficacy was a personal belief in the ability to manage or perform certain behaviors in order to achieve goals. Individuals with self-efficacy gain confidence and strive to demonstrate that behavior without compromising on obstacles.

The study found that the average age of pregnant women was 26.86 years (in early adulthood and the period of maturity), they inevitably have a perception of their own ability to consume food. Consistent with the study of Ploypailin Khamkaew (2016)²⁸ found that most of the participants were female, aged 26-30 years, single status, bachelor's degree, private company/work for wages, income about 20,001–30,000 baht, healthy eating expenses less than 100 baht per session and healthy eating frequency 2-3 times per week. They recognized that the best healthy food was clean food. The internet/social network was a way to get healthy food information. However, factors in terms of values, taste attitudes, expectations and perceptions about healthy food had a statistically significant positive influence on healthy food intent behavior in Bangkok (83.9%) at .01. Therefore, pregnant women with self-efficacy tend to have better dietary habits. This study was consistent with the study by Suwannee (2011)²⁵ found that self-efficacy was able to predict nutritional health-promoting behaviors in pregnant women older than 35 years ($\beta=.25, p < .05$). Consistent with a study by Wilairat and Somporn (2012)²⁹, found that self-efficacy affected better nutrition among adolescent pregnant women. In addition, self-efficacy was able to predict dietary behavior of higher education students ($\beta=.39, p < .05$) (Wiraya, 2010).

4. Beliefs of food consumption

In a study of dietary beliefs, dietary beliefs were found to explain variability in dietary behavior ($\beta=.16, p < .01$). In other words, pregnant women who had inherited dietary beliefs were more likely to act on that belief. However, each person's dietary beliefs were different. Importantly, each area had different beliefs in terms of food that should or should not be eaten. As a result, there were different consumption behaviors (Sutham, 2003). Green & Kreuter (Green & Kreuter, 1991)¹⁸ stated that belief refers to the certainty of something, either in the form of a phenomenon or as an object, in the sense that the factor was valid and true to one's beliefs. Therefore, when a pregnant woman was passed on her beliefs about food intake or saw an example from someone close to her, they believe it was a good thing to do. The results of this research were consistent with the study of Tarinun Leelathiwanon (2014)³⁰ found that co-factor could be used to predict food consumption behavior such as self-efficacy in food consumption, nutrition social support, and beliefs of food consumption. 37% of the results could be combined to

predict ($R^2 = .37$, $p < .001$). Contrary to the study by Sasithorn Phochai (2017)³¹, found that cultural beliefs in terms of pregnancy were negatively associated with health care behaviors of pregnant women among Cambodian migrant workers ($r = -0.292$, $p < 0.001$).

5. Knowledge of food consumption

In dietary studies, it was found that variability in dietary behavior could be explained ($\beta = .12$, $p < .01$). In Hosper's view (cited in Manoch Vejpan, 1989: 15-16)³², knowledge was the first stage of behavior related to the ability to remember, recall, see and hear. Knowledge was one of the stages of learning which included definitions or meanings, facts, theories, rules, structures, solutions, and standards. It could be said that knowledge was a matter of remembering and recalling without the need for complex thinking. For this reason, memorization was an important process in psychology and was the one that leads to the behavior of comprehension along with the application of knowledge in analysis, synthesis and evaluation.

The results of this research were consistent with the study of Anukul (2008)³³ found that knowledge was related to food consumption behavior of high school students. Consistent with the study of Kritin and Cheepsamut (2014)¹⁷ found that knowledge was related to food consumption behavior of the elderly in Songkhla Province. Contrary to the results of Wariya (2010)¹⁴, it was found that knowledge of food and nutrition had no effect on food consumption behavior of higher education students. In line with the concept of Green and Kreuter (Green & Kreuter, 1999)¹⁸, knowledge was an important factor affecting behavioral expression, but knowledge alone was not sufficient to produce healthy behavioral changes, but other factors were needed. Contrary to the study of Wariya (2010)¹⁴, it was found that knowledge of food and nutrition had no effect on food consumption behavior of higher education students.

VII. CONCLUSION

The dietary behavior of pregnant women was high, and the co-factor was used to predict dietary behavior. Predictive variables could be sorted from highest to lowest as follows: perceived dietary benefits, nutrition social support, self-efficacy in food consumption, dietary beliefs, and dietary knowledge of pregnant women. The results of this research should be used as a baseline for further development of a model for promoting appropriate dietary behavior among pregnant women.

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Learning of People on Local food security in the Central Part of Thailand during Covid-19 Crisis

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Abstract— *The objective of this research was to study food security level of the community in the central part of Thailand. Using mixed research the research instruments were questionnaires, interview recording forms. Data collected of from in-depth interview, small group discussion and workshop. The qualitative data collected from 60 key informants and using content analysis. Quantitative data were collected from 426 samples using descriptive statistics for data analysis. The results showed that local food of the community in the central part of Thailand is derived from the knowledge and the management of community food sources. As for building food security level of the community level, it requires participation in the community's food crop resource management by using the 3L2N model. It consists of (1) Personal Learning (2) Community Learning (3) Organization Learning (4) Internal Network and (5) External Network, and the post-test results from the action research, it was shown that the pre-test score was statistically significant at 0.05*

Keywords— *Learning, Local Food Security, Central Part of Thailand*

I. INTRODUCTION

The spread of the Covid- 19virus (Covid-19) that has occurred in the world since 2019 and has continued for more than 2 years that has affected the way of life of people around the world. This has caused food shortages to occur in hungry people around the world. Especially in developing countries, where access to food continues to increase (Prosekov, A. and Ivanova, S. 2018). Thailand is one of the countries affected by the food crisis caused by the epidemic crisis, especially after the government announced lockdown measures, which resulted in many urban residents unable to access food for consumption. Both in the nature of the shortage of food and ingredients for cooking that cannot be obtained during the lockdown measures. Many people queuing for government aid is a clear reflection of the food shortages that arise during this critical time. The phenomenon represents the epidemic crisis that has resulted in a food crisis which in addition to causing higher food prices. It also results in more difficult access to food leading to food hoarding that making low-income and unemployed people cannot access to enough food. In addition, the resulting lockdown has resulted in a large number of migrant workers moving back to their

hometown due to economic problems in the city because they reduced income or some businesses have to shut down, causing labor in the city to lose their jobs. This increases the pressure on food in the community. To address food shortages, it must ensure that the unemployed and low-income people have access to adequate food supplies in times of crisis. Food security level must be promoted in the community and household, especially the return to focus on food knowledge and community wisdom by promoting environmental education to lead to food security level in the community to overcome the food crisis.

II. RESEARCH OBJECTIVES

To study food security level of community in the central part of Thailand.

III. LITERATURE REVIEW

The researchers used the following concepts:

3.1 Food Security by FAO (2008) has defined food security into 4 dimensions as follows: The sufficiency of the amount of food obtained by self-production or assistance from others access to resources to produce appropriate food and to have proper nutrition in the context of social traditions; including access to shared community resources, the

utilization of food through the availability of adequate food can be used throughout the year and without shortage, and food stability at home and individuals must have access to sustainable food. Therefore, food security in this research will focus on knowledge management in the community to create food security for the community in terms of adapting food source management and cooking knowledge of the community.

3.2 Environmental Education Process was learning about the environment to lead to create a sustainable environment in the community through the following processes: 1) raising awareness 2) raising knowledge 3) raising attitudes 4) raising skills 5) raising participation and 6) raising individuals and societies the ability to assess environmental performance.

3.3 Relevant research: It was found that the environment is the determinant of human life. Especially people in the community who bring vegetables that can be obtained from the natural environment such as backyard gardens, animal sheds or from agricultural plots to use in cooking for daily living (Bvenura, C. and Afolayan, A.J. 2015). In addition, knowledge from the use of tuber plants that were born in the community to cook carbohydrate substitutes from rice in many areas, both in Thailand and Indonesia) Aggraini and Dewi, D. 2012).

IV. RESEARCH METHODS

4.1 Population and sample

The key informants in this research were local food experts, a housewife who specializes in cooking in the community, Village Health Volunteer, Housewives group president and community leaders, in the area of 3 communities, there are 60 people, by 20 people from Huai Krot Community, Huai Krot District, Chainat Province, 20 people from Pho Talay Community, Khai Bang Rachan District, Singburi Province and 20 people from Bueng Bon Community, Nong Suea District, Pathum Thani Province and 426 Samples from collected by Stratified sampling.

4.2 Research instruments

This research is a Mixed Method Research which collects data from 1) Community Survey 2) Observation. 3) In-depth Interview, 4) Small Group Discussion, and 5) Questionnaire.

4.3 Data analysis.

Data analysis by classification of issues; to understand the interactions between community social activities and food resources. And the environment in the community Based on the creation of learning through the exchange of experiences, problems and obstacles in the management of community food security to create a content conclusion.

V. RESEARCH RESULTS

6.1 Community Food Security Perception

The results showed that Community food security perception according to the conceptual framework of environmental studies, it was found that people in the community are aware of the community's food. Overall average on a high level the average score $\bar{x} = 4.01()$. The scores were ranked 1) Awareness at the highest level $\bar{x} = 4.64()$, 2) Attitude at the highest level $\bar{x} = 4.49()$, 3) Ability to Evaluation the Average at a high level $\bar{x} = 4.28()$, 4) Knowledge average at a high level $\bar{x} = 4.05()$, 5) skills average at a moderate level $\bar{x} = 3.47()$, and 6) Participation Average at moderate level $\bar{x} = 3.13()$. (Table 1.)

Table 1. Community Food Security Perception

Items	\bar{x}	S.D.	Perception level
1. Awareness	4.64	0.63	highest
2. Attitude	4.49	0.68	high
3. Knowledge	4.05	0.74	high
4. Skill	3.47	0.74	moderate
5. Participatory	3.13	0.61	moderate
6. Ability to Evaluation	4.28	0.74	high
Total	4.01	0.63	high

6.2 The results of the analysis of the community's food security perception level revealed that

- 1) Awareness of community food sources caused by the people in the community see the importance of the community environment as an important source of food for the community, where people in the community depend on the environment as a source of food and having a healthy environment will affect the complete food resources.
- 2) Attitudes showed that people in the community were concerned that local food would be scarce or lost, because the ingredients for cooking in the community are more difficult and unsafe.
- 3) Knowledge found that knowledge of local cooking and sourcing of ingredients still existed among elderly people living in the community, but there are concerns that Cooking some local food that people with old knowledge will be lost according to the person and find someone who has the ability to do less.
- 4) Skills found that people in the community had moderate level of skill in cooking local food, which was simple, and also be able to select food plants that were born in the community to cook, but the cooking skills of the new generation are low. Especially complex food makes it a barrier that the new generation does not like to cook local food.

5) Participation found that participation in food resource management of the community occurred only on certain occasions. As for the planning for the development and conservation of the community's environment, it will take place only when the cooperation of community leaders has been requested. In terms of managing food resources within the community, there is no cooperation with local authorities in the community.

6) Evaluation capability. It was found that community people were able to assess the impact of changes in the community's food supply. Assessing that if the community's public food supply is not maintained will affect the food resource base of the community especially the plants that cook local food will be harder to find, and if the new generation lacks learning to cook local food this will result in the community's local food having a chance to reduce its popularity. Lack of succession and no future consumption.

6.3 Food security of the community

1) Conservation of food resources within the community caused by the shared awareness of people in the community in managing public spaces and food resources that occur in public spaces using a participatory process (Common Poverty) with the goal of sustainability for the next generation by creating rules and setting up a committee to take care by a group of community leaders to direct follow up, and there are measures to punish when the rules are violated.

2) Determine the scope of responsibility for managing areas and resources in each type of community together, for example, determining the community's public food source area to be a strictly prohibited intrusion area. The area can be utilized at certain times or seasonally, and the area can be used all year round.

3) Removing lessons learned by organizing a local stage to provide opportunities for people in the community to express their opinions on community food resource management measures. To create exchange of knowledge between people in both the community and the group of leaders this will lead to improvements in the methods of implementation and issuance of regulations to be appropriate for the changing context of the community.

4) Building local cooking skills in the community caused by teaching cooking from a group of elders to those who are younger or the new generation through training activities within the community by formal and informal cooking classes through community cooking activities and transferring of cooking knowledge and cooking skills for the new generation.

5) Expansion of the network of local food producers takes place in two forms: from the expansion of the network of people in the community to people in the community by teaching and guiding between people and going out to be a

speaker to educate local food to people in other communities that it is the creation of a network from the inside out of the community.

6) Promotion and conservation of local food by organizing activities to encourage people in the community focus on local food from organizing a local cooking contest, Organizing teaching activities about local food for students in the community.

The results of the study can be presented learning process to build food security of community through participatory processes in the form of a 3L2N model, which was developed from a cooperative process study and community food resource management.

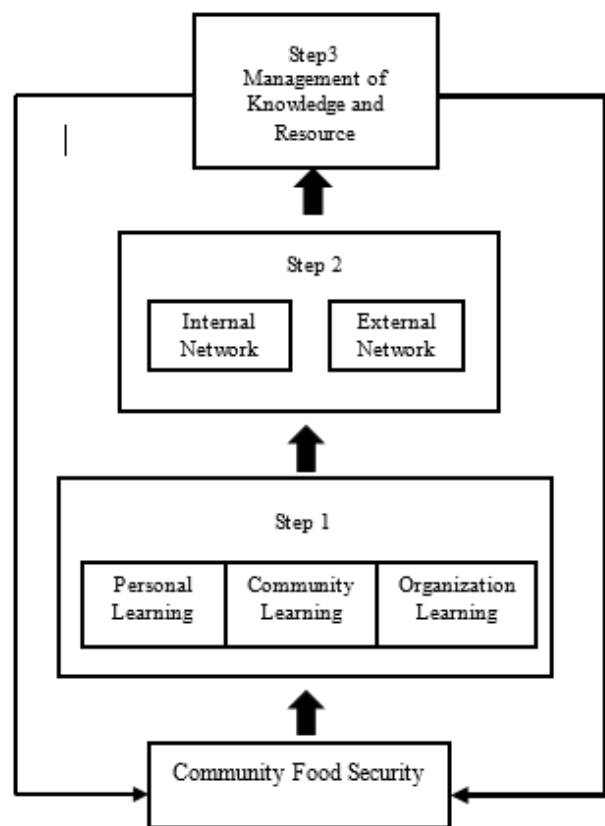


Figure 1. 3L2N Model

From Figure 1. It can be explained that the 3L2N model in building a community food resource management learning process through a participatory process consists of 5 dimensions. The first dimension is personal learning, the second dimension is community learning, and the third dimension is organizational learning, the fourth dimension is the creation of a network outside the community and the fifth dimension is networking outside the community. This will lead to community food knowledge management and community food resource management. This will result in the

learning of people in the community lead to the creation of a development plan and activities to conserve food sources of the community.

VI. DISCUSSIONS

The perception of food security among the people in the community found that the group of people who play an important role in food management in the community are housewives, which plays an important role as a household food supplier and is a group of people who are aware of the importance of local food consumption of the new generation. As for what affects the food security of the community including the lack of activities that facilitate cooperation in promoting local cooking and consumption of local food, it shows that community people still recognize the importance of community food (Sirisai, S. 2013). In addition, the important role of housewives in providing food to members of the household is an important obligation. As a result, housewives need to learn how to find food for household members (Habtezion, S. 2012). They will play a key role in adopting new agricultural technologies or methods to produce food crops for households (Murray, U. et.al, 2016) and food security for many Asian communities (Makherjee, A. 2012). The approach to promoting food security at the community level must come from the promotion of training using participatory learning approaches, which helps to reduce knowledge gaps for different groups in the community (Bala, BK, et.al. 2014), In addition, encouraging people in the community to cultivate environmentally conscious farming practices of the community can increase food security in arid areas in some communities (Hove, M. and Gweme. J., 2018), and the promotion of food security at the community level requires the principles of conservation and protection of community ecosystem diversity. (Phungpracha, E. et.al, 2016). There must be a focus on individuals related to the community's food system (Kirwan, J.and Maye, D. 2015). However, building food security is an important policy of every country, and Management needs to understand the environmental changes affecting community food production (Eriksen, P.2008).

In terms of community management, In addition, the role of housewives which is an important element in building food security in the community. Especially a variety of crops that are planted in the house, backyard, fence, making it a source of food for households that help households reduce food expenditures, and promoting household health (Tolentiono-Gracia, J. 2012), and it shows that using the environmental education activities that focus on building environmental awareness has made people in the community more knowledgeable about the environment and participated

in environmental conservation (Shams, M. 2005). In addition, the creation of group development networks to enable stakeholders to understand the changes in food and agriculture is a guideline for analyzing the situation. in planning future community development (Bourgeois. and Setted, 2017), and the success of learning through community experiences due to factors in common planning, community crisis reflection, effective project management, and community-based project evaluation (Bedri, Z., et.al. 2017).

VII. CONCLUSION

The results of the analysis show that local food security level of the community in the central part of Thailand is stable in terms of sufficiency and quantitative diversity of plant species. As for the access to food sources for people in the community, there can be many sources. In terms of utilization, people in the community themselves have the right to use plants in their own households and public food sources in the context of the community, but in terms of food sustainability, there is a downward trend due to the social change in the new generation, the interest in cooking local food has decreased that resulting in a lack of interest in learning how to cook as well as do not see the importance of food plants in the community which will affect the persistence of food crops in the community, especially in urban communities.

The community's perception of local food security was at a high level, especially the awareness of environmental degradation in the community. This directly affects the food supply of the community, causing the food raw materials of the community to decrease. Therefore, community food resources must be managed to be complete and safe for use in cooking in the community. In addition, people in the community are aware of the instability of knowledge in local cooking that tends to be lost according to the age of the people in the community Therefore, knowledge about local cooking must be promoted to people in the community to the new generation, and the creation of learning networks to enable them to pass on knowledge about local cooking to the community.

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Creating infographic of Local knowledge Transmission on Lanna Belief on Rice Culture

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Abstract— The aims of this research were; 1) To study the history and the community context on the knowledge of Lanna rice culture in social Lanna tradition, and 2) an approach on Transmission and maintaining the local knowledge and experiences of Lanna rice culture. The informants included: 1) native people, 2) experts rice field, 3) experts and scholars on Lanna traditional art history and culture, 4) a networking group of Lanna rice culture. Data were collected from documents, observations, interviews, and group discussions. The findings revealed that: 1) Rice cultivation of the Lanna culture has the ritual process throughout the cycle, from planting, harvesting, and after harvesting, 2) The rice cultivation has a Lanna belief in sacred things that must be respected. Moreover, have a relationship with Buddhism, 3). Rice cultivation of Lanna culture is a community, social dimension that people in the community context do together, for example ' owl-mull-kiey- khaw. To make it happen in Lanna Culture in what is known as the Lanna region of northern Thailand, comprising the provinces of Chiangmai, Chiangrai, Lamphoon, Lamphang, Nan, Phrae, Mae Hongson, and Phayao. Finding a method for building an understanding of beliefs related to rice cultivation and Lanna belief rituals from planting to harvest and to achieve knowledge transfer as an infographic; 1.) Transferring with culture, 2) Transferring by values and beliefs, 3) Transferring with communication skills. Create a new infographic design layout and Knowledge gathering other attractive; 1.) Creating shapes, tools, architecture, rituals, and people connected to the Lanna rice culture and emphasizing the identity of Lanna culture, 2.) Creating an applied infographic from the process of creating an animation with pre-production, production, and post-production, 3.) Evaluate the understanding of belief in the Lanna rice culture with a pre-test, post-test. The relay infographic guided the research on the subject of faith in the rice culture of Lanna; 1). Local experts should provide the Transmission for accurate knowledge, 2). Learners must be motivated to learn, be interested. Local people must be aware of the importance of values, 3.) The transmission process must have a system to share ideas, 4. The content for the transfer is based on a narrative or a rewrite of the story. It should be interesting to the viewer. The outcomes of knowledge transferring: Local peoples must give research, conservation, and development of Lanna beliefs Lanna rice culture knowledge are essential. As a result, an infographic requires an understanding of how to convey analysis of how an infographic is appropriate. Suitable for people who need to have fun equipment, not too short or too long, not boring. The subject of Transmission on Lanna Belief on Rice Culture using infographic media is highly satisfying.

Index Terms— Infographic, Lanna Belief, Rice Culture Lanna

I. INTRODUCTION

The Lanna Kingdom is a location in the northern part of Thailand. The culture of a people is fascinating. Lanna culture has many unique characteristics such as food, tradition, dress, language, music, tattoo, and living. The word "Lanna" means Millions of rice fields or many rice fields. Lanna came together with Lanchang that means the land of millions of elephants. Lanna Belief is understanding and recognition respect confidence in something without reason or evidence to Prove.

Lanna's Belief happens to Lanna People, done has a Positive Effect on Life. Lanna people believe that their ancestors' spirits live on after death and can communicate through a sensitive medium. Every year, Lanna people perform rituals to respect their ancestors, which is a belief that has been practice for a long time. The rituals help keep the relationship

the bonds between family members strong. Rituals transmitted Lanna's culture to be an agricultural society when the uncertainty happened in nature.

The Belief into a symbolic form, beliefs, and traditions creates the Belief that the balancing of nature depends on gender equilibrium—one Belief about rice the most exciting and closely connected with the Lanna people. In Lanna, there is usually growing sticky rice because it is the main dish in the north. For example, before planting rice, the local famous sticky rice in Chaing Mai is Sanpathong Rice. The sticky rice from the north has an excellent quality. It will have a soft texture with pure white color and taste delicious when it's already cooked. Lanna society is a traditional agricultural society that has accumulated knowledge and understanding of soil, water, and rice management in harmony since ancient times. That results in sustainability in the production system [1]. To pay respect to god for a reason, anticipate giving the excellent production. In a year, farmers will grow sticky rice

in two rounds, Na-pi and Na-prang. Each cycle of cultivation lasts about 130 days or about four months. There are rituals and beliefs ceremony of fertility for Lanna's rice. For example, pray for Rainfalls - Korfon, HagNa, Boo-cha Maephosop to show respect to nature and angels. [2][3] The Hag-Na ceremony Starts from pre-growing to after harvest. The agricultural ceremony occurs in a different timeline. Agricultural rituals related to rice are therefore crucial to the way of life of the Lanna people. Agricultural ceremonies are cultural heritage. [4] The reason for the ritual is because the rice planting of the Lanna people depends on nature. Most of it is about the weather conditions that are beyond our control. [5] Rice cultivation: Local farming and harvesting with ritual beliefs began to appear less and less because rice is grown to get more production and use technology to replace it. [6] Traditional farming and harvesting with the relationship among the people in the community have become less popular. [1] Therefore, to maintain the old farming story in its original form, the presentation of the Lanna belief in rice culture was chosen by using infographics media to convey knowledge, likely a quality medium. Infographics are the science and art of communicating. It is about bringing complex information to make it easy to understand. Infographics mean bringing information or knowledge to be summarized as information in the form of graphics designed as still images or moving images. It is easy to understand in a quick and clear time, able to convey to the audience the meaning of all the data. [14] An infographic can be designed as a static image to collect and summarize all knowledge information in pictures and graphics on a single page. Therefore, it makes it easier to read and can study complex information faster. [10] Beliefs are subject; culture can be abstract. Infographic media helps to transform conceptual content into more concrete. [19] Many people in their presentations use infographics. To make information easy to store, easy to find, and easy to use, the introduction of infographic media for presentations Local knowledge Transmission on Lanna Belief on Rice Culture also applies to culture. others in the future

II. RESEARCH OBJECTIVES

The objectives of this research article were 1) To study the history and the community context on the knowledge of Lanna rice culture in social Lanna tradition, and 2) Approaches to transferring local knowledge and experience on the Lanna rice culture by using infographic techniques

III. LITERATURE REVIEW

A. Lanna rice culture

In Thai society, which is an agricultural society, Rice cultivation is an essential factor for families and communities. Part of the wisdom is reflected in agricultural rituals. When modern rice culture replaced it, the local rice cultivation culture was discontinued. What happened was that the family's underlying mental system was lost in the transition. Lanna beliefs about rice cultivation in general, rice rituals have four main goals.

- 1.) It appeals to a ghost or a mystical power to help the rice plant grow. There is a large amount of output on demand.
- 2.) It is a request for permission from a ghost or deity present in nature to use it.
- 3.) It is a request for forgiveness against nature or the supernatural when it has transgressed.
- 4.) Predicting future results.

Rituals in Lanna Rice Culture

A) Rituals before planting

The purpose of the sacrifice to inform, beg, beg, ask for permission, or risk greetings, such as a ceremony to pay respect to ancestors and village spirits before farming. For example, before the water is brought in in the northern region, there is a water ghost worship called Lhang Pee Khun nam. Ceremony to pray for rain Talk about sex is mixed in because sex is a symbol of fertility. It to pray for rain made during the 6-8 months before planting.

Bun Bang Fai was held in the sixth-seventh lunar month (around May or June-July). The ceremony is associated with traditional beliefs in supernatural powers that help support the rice production for the coming planting season. It is also the essential symbol of friendship and unity used to fight against dry weather and request rain.

B). Rituals during cultivation

- Hag-Na ceremony Starts from pre-growing to after harvest
- Talaew: Lanna people believe that "Talaew" will protect the evil or fierce animals which come to destroy the harvest products. Lanna's belief is the desire for abundance and well-being. Rice is the main agricultural plant, and rice farmer is the principal occupation of the Lanna people. Also, Lanna people have many beliefs concern with the field of rice. Talaew represents the hawk eyes that will always watch and capture all bad things

- Maephosop: Is the angel who protects and makes the fertile rice fields. Moreover, Kuen-Thaow-thang-see: Great four gods that are four Gods who are chief of all gods. In every ceremony will worship these four gods.

C). Rituals when getting the product. Thank you for taking care of the farmer until getting a great product.

-Hab Kaow Keun Long: the ceremony after the harvesting that will pray respect, thanksgiving, and Invite the Pho sop angels to protect the rice barn. [15] Keeping the produce in the barn to select the seeds for planting in the next round of planting

-Tan kaow Mai: The belief that the Buddha statue can also feel cold as a human. The farmers will gather firewood to make the weather warm. Furthermore, pay respect by offering the cooked rice from the new harvesting. [6]

B. Infographic meaning

Infographic is a combination of the two terms, information, and graphics. Infographics are challenging to understand or information in large amounts of text or knowledge to summarize information in graphic lines. Symbols, graphs, charts, diagrams, maps, Etc. Can design either still images or moving images. It is easy to understand in time, quickly and clearly and tells a story on its own. There are essential elements that are interesting topics, images, and sounds, which must convey to the audience the meaning of all information without the need for a presenter. Let us expand again infographic design can make effective communication, remember for a longer time [14] [16] [21] [22] Infographics play a significant role in presentations is that 1) Today, we live in an era where there is so much information that we do not have enough time to view and read all the information. Infographics make it easy for us to know a large amount of information. Furthermore, faster 2) Infographics are the science and art of communication. It brings complex information to make it easier to understand by using beautiful images. 3) A good infographic should have three characteristics: simple, attractive, and beautiful. 4) Human learning can be divided into four forms, namely Visual, Auditory, Kinesthetic, and Read/write, which 65 percent of people are good at learning by seeing 5) The average person, 80% of the brain's perception, is about perception and processing it visually. 6) People process pictures 60,000 times faster than reading text. 7) An infographic must take into account three things: 1) content, 2) storytelling, and 3) design [19].

Infographics design principles are divided into two parts:1.) The information to be presented. Must have meaning enjoyable the story is revealed to be true. be accurate 2.) Design The design must have a form, pattern, structure, function, and beauty. by design to be easy to understand easy to use [9][19]

Current media infographics There are all three formats.

1 Static Infographic, pictures such as brochures, posters, picture books, magazine or newspaper articles. 2 Interactive Infographics suitable for presenting information with large

volumes and complex can additional Change the content or update the information. To be current, 3 Motion Graphic is the creation of graphics to have movement in many dimensions, unlike Animation in that there are no characters as the narrator or dialogue. Nevertheless, it will create motion for the graphics, although this type of infographic is the most effective. It can attract viewers to feel more involved than static images. Moreover, the cost of creating a piece will increase. [11]

A static infographic is like collecting and summarizing all knowledge information in images and graphics on a single page. Therefore, it makes it easier to read and can study complex information faster, but if the interpretation is misunderstood, it may lead to a misunderstanding of the lesson. [10] Infographics are a technique for constructing large amounts of literal information and communicating visually. The infographic helps to attract attention and is easy to understand. However, with the technique of presenting infographics [12], Animated infographics Create engaging presentations, how-to, examples, guides, infographics, which should tell a story Build understanding between the messenger and the receiver correctly. Development of teaching materials, infographics such as still images and animations. To be used as a teaching medium. Therefore, it has the potential to be applied in teaching and learning management to create understanding. Without spending much time, it makes it easier to remember what is presented or a concept than just communicating with text or words. with the efficiency of communication contained in the infographic. [23] Therefore, teaching media should be developed to support the teaching and learning process by integrating knowledge and skills in creating and developing static infographic teaching materials. as a guideline for improving the learning quality of learners to a higher level [20]

IV. RESEARCH METHODS

A. Research Design

This research is mixed (qualitative research and quantitative research) using the method of study. Collect data from primary and secondary documents, related research textbooks, and in-depth interviews from several groups of knowledgeable groups providing information to obtain information. There are many perspectives the methodology divides into two parts: design analysis and experiment. The quantitative data collected from the 70 critical viewing perceptions were analyzed using descriptive statistics. Researchers developed an infographic model in the graphic design and animation process to identify a) the quality of infographics in three areas: objectivity, design, content,

usability, and (b) research. culture to be used as a database for research. The implementation process consisted of 1) Study documents from primary sources, i.e., books on Lanna, research books, articles, and other related documents. 2) A spatial study to understand the local rice farmers, Lanna history experts, and stakeholders. About the operational objectives and goals. 3) synthesize information 4) Data use in graphic design. 5) implement to make infographics. 6) Processing information at every stage of collection, analysis, and presentation that summarizes the findings

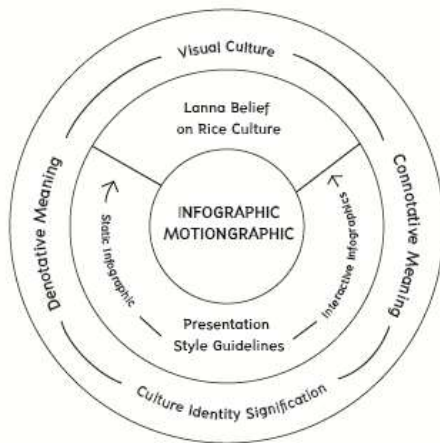


Fig.1 A Diagram of Research Conceptual Framework

B. Research Process

Research process of this research has developed into steps consisted of to analyze concept, created research tools, conduct the experiment, and to assess experimental results. Steps were shown in Fig. 2.

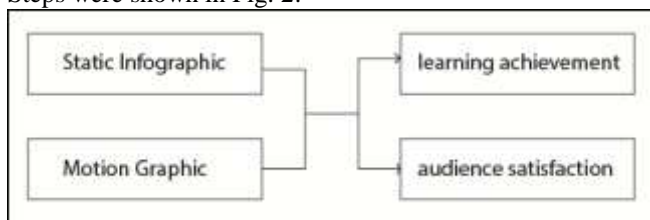


Fig.2 Research process

V. RESEARCH RESULTS

A. Results Belief on Rice Culture Analysis

Results of the study can be presented as knowledge about Lanna rice culture in the Lanna rice cultivation society, rice ceremonies are usually performed with four main goals.

1 It is an appeal to a ghost or a mystical power to help the rice plant flourish. A large number of products are available on demand

2 It is a request for permission from a ghost or deity present in nature to use it.

3 It is a request for forgiveness against nature or something supernatural when it has transgressed.

4 It is a prediction of future output.

For the belief in rice cultivation a.) ritual before planting b.) Rituals during cultivation c.) Rituals when getting produce the community dimension is essential, helping to drive the Lanna community mainly to do farming and animal husbandry. Lanna people have agricultural ceremonies that are a group practice. Occupational beliefs allow the community to live together happily. [8]



Fig.3 Belief and farming of Lanna people

B. Results of Infographic

The study of making infographics uses an animation production process [18] with three steps: Pre-Production, Production, and Post-Production. This corresponds to the research of Barida suitable with the creation of media using 3P principles, which consist of Creating Applied Infographics from the Creation Process With the pre-production, production, and post-production steps consist of 3 steps as follows: [13]

1. Pre-Production from data collection and analysis obtained from collecting photographs, observing books, documents, tools, architecture, rituals, and people connected to the Lanna rice culture who have provided information Related to research, the next step is to bring the knowledge gained into the design process. Creating the shapes and graphics of the Lanna culture's identity is the way to form gates, sketches of characters, and de-fictional scenes on paper. After that, design the Story Board, compile the information, and make the plot concise and easy to understand by defining the media presentation as an infographic featuring the Lanna news. for use in the next step

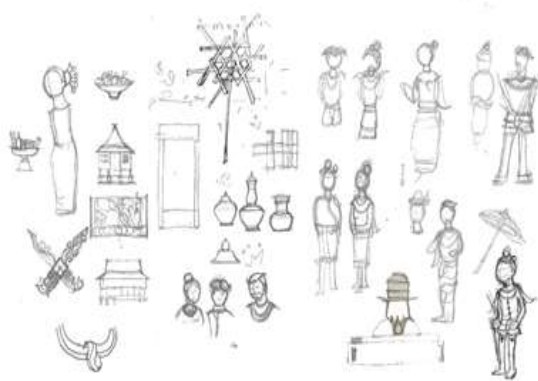


Fig.4 Sketching images for use in graphics

2. Production of hands-on operations with computer programs. Using a computer program, create images to be used in media using primarily Adobe Illustrator, Adobe After Effect, and Adobe Animation. Arrange the composition of the picture and set the movement. Using Adobe After Effect software, recording and testing audio narrations used in media for Lanna music and audio narration. with Sound Recorder 2.3 software.



Fig.5 Infographic created from computer software I.



Fig.6 Infographic created from computer II

3. Post-Production Once the infographic has been edited and edited the media again and asked for advice from 3 infographic media

experts and revised from the expert advice and then edited and added all the details of the work again. The results of the quality assessment of Lanna rice culture infographics with animated images shown in fig.7

Assessment List	the result assessment		
	\bar{X}	S.D.	Average
1.Design	4.23	0.70	high
2. Content	4.05	0.72	high
3. Usability	4.06	0.71	high
Overall average	4.14	0.70	high

Fig.7 Table assessment

VI. DISCUSSIONS

The main objective of this study is to provide information for transferring local knowledge of Lanna culture that has to design by the method identifying the story of the farming of the Lanna people. Discovered an excellent 7-step approach and process for designing infographics. 1.) Gathering data & Reading everything, the data obtained from the data source may be redundant and categorized. To be easy to digest, easy to use, and skim the information to get an overview, use data management skills and choose important presentations to complete all issues. 2.) Finding the narrative very complex narratives makes infographics less enjoyable, which may use different or modern graphics. That can draw attention to the subject. 3.) Identifying problems of what is presented once it has been determined to be validated. There may be information that does not support the topic or issue to be delivered. Therefore, it is best to draw an accurate conclusion. Otherwise, it will become inaccurate in the content presenting accurate and valuable information that is not always easy to design to reach your audience. A good infographic design requires a clear view and appreciation of the details of the data. 4.) Creating a hierarchy of information to be understood from beginning to end in a time-based manner or before-after or divided into a top-bottom order. 5.) Choosing a format infographic & Determining a visual approach Choosing an infographic format and assigning images to the topic Choose a simple pattern such as graphs, diagrams, Or the easy-to-understand text is structured in the design to be artistic and draw lines to compare the data. For example, it doesn't show the numbers but changes the numbers to images. Or create a symbol that matches the topic. 6.) Choosing between two alternates still images and movies Animated infographics will be more interesting still image info, but there may be more steps in the production process. 7.) Comparative research should be done on developing infographics to create awareness and recognition for other

forms of audiences, such as simulations, educational games, and refinement and testing.

VII. RECOMMENDATIONS

- 1.) Local experts should provide content transfers for accurate knowledge.
- 2.) Learners or audiences must be motivated to learn and have an interest in local agriculture.
- 3.) Local people must realize the importance of local rice cultivation values.
- 4.) The transferring process requires a system to share ideas for farmers, media makers, audiences.
- 5.) Content is based on storytelling or rewriting a story that interesting to the audience. Results of Local knowledge Transmission Villagers must develop from Lanna's beliefs or knowledge of Lanna rice.
- 6.) Choosing the right media for what to bring will make your communication more effective.

VIII. CONCLUSION

In conclusion, the findings from the analysis of both quantitative and qualitative showed.

The creation of an infographic on Lanna rice culture uses three steps of the media production process: pre-production, production, and Post-Production. Infographic media production the media's quality is seen in 3 areas: design, content, and utilization. The infographic is concise. Understanding and up-to-date, including clear illustrations and audio narrations the satisfaction assessment results were moderate. The composition of the story has been compiled from the belief in the culture of Lanna rice well. Guidelines for graphic works from what is familiar to everyday life will be easy to understand. Reduced to more minor detail Guidelines on the use of color to represent nature, agriculture to the fields and natural atmosphere maybe green. Yellow rice Content guidelines use space from storage. The story is presented, to the point, unique to the culture and area, with simple methods, steps, and sequences. Infographics are learning materials that create learning satisfaction through effective communication. with clarity and understanding to achieve the objectives Learn wanted by infographic help. Satisfying at the highest level, become more interested in learning to remember the stories watch well

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The Causal Relationship and Effect of Purchasing Decision on Products via a Social Media of Consumers in Chumphon Province

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Abstract— Due to the rapid growth of social media and social networking, this has a continued impact on marketers for their business exposure as well as expanding purchasing choices of the consumers. Therefore, the objectives of this research article were 1) to study the marketing mix effects on trust, customer loyalty and customer satisfaction. 2) to study the trust and customer satisfaction effect on customer loyalty, and 3) to study trust, customer loyalty and customer satisfaction effect on purchasing decisions. The study used structured questionnaires to collect data from 384 respondents purchasing products via social media in Chumphon province. The statistics used for data analysis were descriptive statistics, including percentage, mean, standard deviation, and inferential statistics, including, correlation analysis and multiple regression analysis. The results show that the marketing mix has a significant positive effect on trust, customer loyalty and customer satisfaction. Furthermore, trust and customer satisfaction have a significant positive effect on customer loyalty. Finally, trust, customer loyalty and customer satisfaction have a significant positive effect on purchasing decisions on products via social media. The empirical results from this study will be beneficial for an entrepreneur to develop marketing strategies for selling online products to meet the consumer's satisfaction, use this information to increase sales and profits, and be able to deal with the challenge in the competitive market.

Index Terms— Marketing Mix, Trust, Customer Loyalty, Customer Satisfaction, Purchasing Decision

I. INTRODUCTION

Enabled by technology, the growth in online shopping has been fueled by a new generation of consumers who want greater convenience, value and options. For consumer businesses, this trend poses both challenges and significant opportunities. Competition is no longer limited only to local shops during business hours but they can do shopping most of the time and everywhere. In a truly global online marketplace, products can easily be purchased from retailers and manufacturers located anywhere in the world or from those with no physical retail locations at all. Advances in technology, logistics, payments and trust coupled with increasing internet and mobile access and consumer demand for convenience have created a US\$1.9 trillion global online shopping arena, where millions of consumers no longer 'go' shopping, but literally 'are' shopping at every moment and everywhere [1]. Online shopping is the easy solution for busy life in today's world. In the past decade, there had been a massive change in the way of the customers shopping. Despite consumers' continuation to buy from a physical store, the users or buyers feel very convenient to online shopping.

Online shopping saves crucial time for modern people because they get so busy that they cannot or unwilling to spend much time shopping [2].

Thailand was one of the fastest-growing regions in the world in terms of business development. Thailand has 57,000,000 internet users. Therefore, Internet usage has a great impact on the business in implementing information technology into the online business. Shopping online via social media has seen unprecedented growth in the last few years. Eyeing Thailand's substantial e-retail opportunity across multiple segments, investors have been aggressively funding the e-commerce sector [3]. While the elder population has rapidly increased and will become a super-aged society in 2021. Currently, [4] the online shopping business turns popular because of more convenience and faster due to internet networking development. The Elderly now use online technology mainly for entertainment, tracking for information and have conversations, and less proportion for online purchasing.

Because of the development of living standards and the accelerating pace of life, consumers' shopping behavior has changed dramatically. Social media has been affecting the daily lifestyles that people have. Currently, there are more and

more people spending bigger and bigger amounts of money on shopping and purchasing on social media [5] It is true that selling or buying products on the internet has become a new trend. Online customer expectations grow every day, so companies are forced to adopt a more planned approach to online. [6] Evidence shows that customer satisfaction plays an important role in purchasing decision, that is why marketers should pay attention to it, while they are selling goods or service on the internet

However, other aspects are sequencing the success of the online business which include marketing strategies. For marketing strategies, the business owners can prepare the appropriate strategies to reflect the need of the customers, regarding what product, price, place and promotion should be. [7] Successful marketing strategies will be implemented. The important goal of a business is to offer products and services that best serve its consumer needs. A business that fulfills the customer needs with trust, loyalty and satisfaction very well is more successful than its competitors as trust, loyalty and satisfied buyers tend to make a repetitive purchase. Moreover, in Thailand, online shopping via social media has been evolving fast and has the potential to grow exponentially in time to come, as Internet penetration reaches far and wide across rural areas. Thus, the purpose of this study is to investigate the causal relationship and effect of purchasing decisions on products via social media of consumers in Chumphon Province.

II. RESEARCH OBJECTIVES

The objectives of this research article were 1) to study the marketing mix effects on trust, customer loyalty and customer satisfaction, 2) to study the trust and customer satisfaction effect on customer loyalty, and 3) to study the trust, customer loyalty and customer satisfaction effect on purchasing decision.

III. LITERATURE REVIEW AND RESEARCH HYPOTHESES

A. Marketing mix

The marketing mix is the essential factor of decision making and evaluations related to markets of financial firms so that marketing mix or marketing strategy is a combination of essential elements for planning and the fulfilling whole of marketing operation process. From the other aspect marketing mix elements are manageable also they are related to each other mutually. Deciding on one of them affects other elements directly and if marketing mix elements combine each other effectively so that either cooperate consumer needs or environment needs at the whole of market, it can cause the

creation of efficient marketing system [8]. The marketing mix is a collection of controllable tools of marketing which firms are collocated until they respond to a target market. Marketing mix encompasses a whole of works firms can fulfill to promote demand for their products [9]. The definition of the marketing mix to find a decent place in the target market is defined as presenting the right product in a convenient location with a worthy price at a right time. In fact, marketing mix illustrates a firm's movement orientation using some construable variables in a condition, which many uncontrollable factors exist. In other words, the decision-making variable of marketing in the shape of marketing mix models prepare a framework, which firms using them develop planning for marketing activities. [10]. In this way two applied category for using marketing mix are imagined; one of them deciding of presenting products is and the other one measurement and evaluation of present marketing strategy to realization cases that were mentioned, each one of elements related to the marketing mix in addition adaption with each other should be coordinated with various needs of the target market. Hence marketing mix is defined as a result of attempts and activities of management for an innovative combination of interrelated activities of marketing which satisfy the need of customer in the best procedure parallel to maximization of benefits. [11].

B. Trust

Trust means "the willingness of a person to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trust or, irrespective of the ability to monitor another party". Indicators in the trust including, 1) payment transactions reliably, 2) believe the stuff that comes by the order, and 3) believe that personal privacy will be safe [12]. Trust refers to the customer confidence in online shopping based on the expectations regarding the ability, benevolence, and integrity of the online retailer [13]. In other words, trust deals with the customer's belief that the online retailer does not act opportunistically by taking advantage of the situation. However, because of the uncertainty and information asymmetry associated with online shopping, customers perceive greater risk. This reduces their attitude toward online shopping and inhibits them from purchasing in an online shopping environment. In such cases, trust is argued by various researchers to reduce the system-dependent uncertainty and transaction-specific uncertainty, thereby enhancing the global evaluation of online shopping [14]. Thus, trust helps customers overcome the perception of risk and insecurity associated with online shopping. In online shopping literature, trust has been often associated with perceived risk. In uncertain situations, trust comes into play

and exerts influence on customers purchasing behavior. Extant literature suggests that customers who perceive greater risk in online shopping tend to exhibit low levels of trust, which makes them cautious in trying out new things. In contrast, customers with high trust in online shopping, regardless of the perceived risk, exhibit a more positive attitude and tend to accept things at first sight [15]. This indicates that trust is an important intervening variable through which customers' evaluation of online shopping predicts purchase intentions.

C. Customer Loyalty

A firm's prediction of market share through its existing loyal customers is an essential concept in marketing studied by many researchers to retain current customers [16]. The research defines customer loyalty from an attitudinal and behavioral perspective, whereby customers exhibit a long-term commitment to future repurchases. Prior studies show that customer loyalty can be largely achieved through evaluation of customers' perceived level of service quality [17], price fairness and customer engagement [18].

D. Customer satisfaction

Consumer satisfaction is the result of comparing the expectations and the experience; in other words, the consumer is pleased when the delivery meets or exceeds their expectations [19]. Satisfaction and loyalty are the key elements determining the success of the market concept implementation [20]. Satisfied customers are the ones that will repeat the purchase if the service provider reached or exceeded their expectations [21]. It is significant to identify the variables of consumer satisfaction since they present the business benchmark and serve as a guide to future improvements [22]. There are eight determinants identified as important for customer satisfaction; those are the following: web design, security, information quality, payment methods, e-quality of the service, product quality, product range, and service provision. On the other hand, [23] argues the following to be the determinants of consumer satisfaction: consumer interface quality, information quality, perceived quality, and privacy.

Online purchasing refers to the activity of searching or purchasing goods and services through the Internet. As a new shopping channel and medium, online shopping competes with the urban traditional retail industry while complementing each other, reshaping people's shopping behavior and retail industry. The operation mode, in turn, changes the layout of the urban traditional retail industry and land use pattern [24]. For e-commerce, it is essential to have a basic understanding of the factors that affect online customer satisfaction. As mentioned earlier, the online purchasing process is divided

into five stages, containing demand identification and awareness, alternative evaluation, information research, purchasing and post-purchase evaluation [25].

E. Customer loyalty

There are three types of brand loyalty namely, attitudinal, behavioral, and composite loyalty. Embracing specified preferences, promises, or purchase targets of the consumer are often regarded as attitudinal loyalty, thus researchers holding this standpoint emphasize the psychological component of brand loyalty [26]. On the contrary, behavioral researchers claim that a recurrence of transactions exemplifies a consumer's brand loyalty. However, the inability to differentiate between true and spurious loyalty is the reason behavioral measures are rejected as the sole indicator of loyalty [27]. Although attitudinal loyalty considerations assist in differentiating brand loyalty from frequent purchases, it does not focus on actual purchases; rather relying on consumer testimonies, which is why it may not be a precise exemplification of reality

F. Purchasing decision

The purchase decision is a tendency of consumers to purchase products or services [28]. By operational definition, the purchase decision is the consumer's desire to buy a product. According to purchase decision is measured by using four indicators, planning to buy, having budgeted money to buy, considering to buy, and having the tendency to buy. Repurchase decisions have long been used by investigators to assist purchasing behavior prediction in the future. In the recommendation context, the willingness of a user to purchase a certain product recommended by the recommender system is known as a purchase decision. It has been shown that when the consumers trust the online store, will be more likely to purchase in that store [29], also found that there is a relationship between customers' trust and purchase decision in online recommendation systems.

Online purchasing refers to the activity of searching or purchasing goods and services through the Internet. As a new shopping channel and medium, online shopping competes with the urban traditional retail industry while complementing each other, reshaping people's shopping behavior and retail industry. The operation mode, in turn, changes the layout of urban traditional retail industry and land use pattern [30]. For a social media platform, it is essential to have a basic understanding of the factors that affect online customer satisfaction. As mentioned earlier, the online purchasing process is divided into five stages, containing demand identification and awareness, alternative evaluation, information research, purchasing and post-purchase evaluation. Delivery quality, product quality and using effect,

product prices, customer service and transaction evaluation system are the five aspects of online purchasing that is correlated to customer satisfaction [31],

G. Conceptual Framework

Four elements served as independent variables under the marketing mix which consist of product, price, place, and promotion. Meanwhile, the dependent variable reflects the outcome of the research study, which is customer loyalty and the mediating effect is customer satisfaction. Those elements are used as the study setting in investigating the relationship among marketing mix, customer satisfaction, and customer loyalty as illustrated in Fig. 1



Fig.1 Conceptual framework

H. Hypotheses

Hypotheses based on the review of the related literature, the following research hypotheses are developed:

H1a Product has significant positive effects on trust.

H1b Price has significant positive effects on trust.

H1c Place has significant positive effects on trust.

H1d Promotion has significant positive effects on trust.

H2a Product has significant positive effects on customer loyalty.

H2b Price has significant positive effects on customer loyalty.

H2c Place has significant positive effects on customer loyalty.

H2d Promotion has significant positive effects on customer loyalty.

H3a Product has significant positive effects on customer satisfaction.

H3b Price has significant positive effects on customer satisfaction.

H3c Place has significant positive effects on customer satisfaction.

H3d Promotion has significant positive effects on customer satisfaction.

H4 Trust has significant positive effects on customer loyalty.

H5 Customer satisfaction has significant positive effects on customer loyalty.

H6 Trust has significant positive effects on purchasing decisions.

H7 Customer loyalty has significant positive effects on purchasing decisions.

H8 Customer satisfaction has significant positive effects on purchasing decisions.

IV. RESEARCH METHODS

A. Research framework

This paper utilizes quantitative research using the survey method to collect data about marketing mix, trust, customer loyalty, customer satisfaction and purchasing decision Fig. 1 shows the research framework and relationship model of this study.

B. Questionnaire development

Based on our literature review, we developed questionnaire items to measure our research constructs. The questionnaire had two sections. Section 1 consisted of 6 items designed to collect demographic data (gender, age, education level, occupation and monthly income). Section 2 consisted of 33 items measuring key variables: 17 items for marketing mix (4 items for a product, 4 items for a price, 4 items for place and 5 items for promotion) [7-8], 3 items for trust [15-16], 4 items for customer loyalty [33], 5 items for customer satisfaction [26-27] and 4 items for purchasing decision [28] [31]. A 5-point Likert-type scale was used for Section 2, with responses ranging from “strongly disagree” (1) to “strongly agree” (5).

C. Data collection

For this study, a convenience sampling technique was used to obtain data from the respondents in Chumphon province. The sample size required for this study was 384 [32] Therefore, questionnaires that were adapted from prior studies were distributed to customers. The study setting focused on customers who are purchasing products via social media.

D. Analytical techniques

Before the data were analyzed, the questionnaires were reviewed to ensure that appropriate information was being collected and defective questionnaires were discarded. The complete questionnaires were coded and the data keyed into the computer. The statistics used for data analysis were descriptive statistics, including percentage, mean, standard deviation, and inferential statistics including correlation analysis and multiple regression analysis.

E. Reliability and validity analysis

To test the data reliability and validity, Cronbach's and correlation coefficient were calculated, and factor analyses were used. The results show high reliability because Cronbach's values for all measurement perspectives were larger than 0.7 [33] and the item-to-total correlation coefficients were all are larger than 0.5 [34]. The factor analysis results also show convergent validity since the eigenvalue of each measurement perspective or factor was larger than 1, the cumulative variations were larger than 0.5, and the factor loading of every item was larger than 0.6 [35]. The results are shown in Table 1.

Table 1: Validation and reliability of measures

Constructs items	Items	Cronbach's Alpha	Discriminant power	Factor loading
Marketing mix				
Product	4	0.673	0.736-0.901	0.642-0.801
Price	4	0.733	0.748-0.900	0.664-0.815
Place	4	0.795	0.692-0.907	0.591-0.769
Promotion	5	0.760	0.762-0.900	0.683-0.827
Trust	3	0.798	0.608-0.911	0.489-0.699
Customer loyalty	4	0.675	0.766-0.900	0.688-0.829
Customer satisfaction	5	0.740	0.776-0.898	0.695-0.801
Purchasing decision	4	0.767	0.712-0.903	0.625-0.790

V. RESULT

A. Demographic Data of the Respondents

The respondents of this study consisted of female customers who are purchasing products (64.84%). From the data collected, the majority of the respondents were in the age group category of 20 to 35 years old (91.93%). In addition, most of the respondents were graduates (90.63%), the majority of them were students (43.75%) and 65.89% of the respondents had a monthly income under 15,000 baht. The results are shown in Table 2.

Table 2: Demographic data of the respondents

Demographic variables		Frequency	Percentage
Gender	Male	135	35.16
	Female	249	64.84
Age	Under 20 years	19	4.95
	20-35 years	353	91.93
	36-50 years	12	3.19
Education Level	Undergraduate	25	6.51
	Graduate	348	90.63
	Postgraduate	11	2.86
Employment Status	Student	168	43.75
	Government	11	2.86
	farmer	16	4.17
	Self Employed	95	24.74
	Company employed	9	23.44
	Other	4	1.04
Monthly Income	Under 15,000 baht	253	65.89
	15,000-30,000 baht	172	33.07
	30,001-45,000 baht	0	0.00
	Above 45,000 baht	4	1.04

B. Correlation Analysis among Variables

This section discusses the findings on the correlation among independent variables and dependent variables. Table 3 represents the interpretation of the correlation coefficient. [36]

Table 3: Designation of the strength of association based on the size of correlation correlation

Degree of Correlation	R Values
Small correlation	$r = -0.10$ to -0.29 and $+0.10$ to $+0.29$
Medium correlation	$r = -0.30$ to -0.49 and $+0.30$ to $+0.49$
Large correlation	$r = -0.50$ to -1.00 and $+0.50$ to $+1.00$

The interpretation of the correlation coefficient in Table 3 was used to understand the relationship between the independent variable and dependent variable. It also was used to explain the relationship strength in terms of the value of the Pearson correlation (r) and the direction of the relationship of the variable that was used in this study. Based on the results illustrated in Table 4 below, the first variable in the marketing mix consists of product, price, place, and promotion correlates ($r=0.572$, $r=0.649$, $r=0.671$, $r=0.682$) which indicates that there is a positive, large significant relationship between marketing mix and trust. The second variable is the marketing mix consist of product, price, place and promotion, with ($r=0.429$, $r=0.459$, $r=0.380$, $r=0.518$) also indicate that there is a positive medium and large significant relationship between marketing mix and customer loyalty. The third variable of marketing mix consists of product, price, place and promotion have ($r=0.606$, $r=0.593$, $r=0.521$, $r=0.643$) which explains that there is a positive large significant relationship between marketing mix and customer satisfaction. The fourth trust has ($r=0.544$) shows that there is a positive large significant relationship between trust and customer loyalty. The fifth customer satisfaction has ($r=0.643$) shows that there is a positive large significant relationship between customer satisfaction and customer loyalty. The sixth trust has ($r=0.615$) shows that there is a positive large significant relationship between trust and purchasing decision. The seventh customer loyalty has ($r=0.540$) shows that there is a positive large significant relationship between customer loyalty and purchasing decision. Lastly, the results indicated that there is a positive, large and significant relationship between customer satisfaction and purchasing decision with ($r=0.712$). These coefficients show that all variables are associated with one another.

Table 4: Correlational Analysis among Variables

Variables	1	2	3	4	5	6	7	8
X	4.19	4.16	4.17	4.30	4.27	4.21	4.31	4.27
S.D.	0.495	0.536	0.597	0.426	0.465	0.448	0.429	0.523
Product								
Price	0.716**							
Place	0.598**	0.602**						
Promotion	0.592**	0.624**	0.619**					
Trust	0.572**	0.649**	0.671**	0.682**				
Customer loyalty	0.429**	0.459**	0.380**	0.518**	0.544**			
Customer satisfaction	0.606**	0.593**	0.521**	0.643**	0.563**	0.643**		
Purchasing decision	0.576**	0.526**	0.500**	0.565**	0.615**	0.540**	0.712**	

Notes: ** Correlation is significant at the 0.01 level (1-tailed).
* Correlation is significant at the 0.05 level (1-tailed).

Summarizes the results of the eight hypothesized relationships. Results show that marketing mix consist of product, price, place and promotion have a significant positive effect on trust ($\beta = 0.429$, $\beta = 0.459$, $\beta = 0.380$, $\beta = 0.518$). Therefore, the first hypothesis (H1a-H1d) is supported. The second hypothesis that marketing mix consist of product, price, place and promotion have a significant positive effect on customer loyalty ($\beta = 0.606$, $\beta = 0.593$, $\beta = 0.521$, $\beta = 0.643$). Thus, the second hypothesis (H2a-H2d) is supported. To test our third hypothesis stating that marketing mix consist of product, price, place and promotion have a significant positive effect on customer satisfaction ($\beta = 0.572$, $\beta = 0.649$, $\beta = 0.671$, $\beta = 0.682$). Accordingly, the third hypothesis (H3a-H3d) is supported. To test our fourth hypothesis stating that trust has a significant positive effect on customer loyalty, regression analysis is performed. The results of the analysis showed that there is statistically significant ($\beta = 0.643$). This finding provided evidence to support our fourth hypothesis (H4). To test our fifth hypothesis stating that customer satisfaction has a significant positive effect on customer loyalty, regression analysis is conducted. The results of the analysis showed that ($\beta = 0.563$) fifth hypothesis (H5) is supported. Lastly our sixth to eighth hypothesis (H6-H8) stating that trust, customer loyalty, and customer satisfaction factors have a significant positive effect on purchasing decisions. Results also indicate that purchasing decision was significantly predicted by trust ($\beta = 0.543$); customer loyalty ($\beta = 0.712$); and customer satisfaction ($\beta = 0.651$). Thus, there is sufficient evidence to confirm H6, H7, and H8.

VI. DISCUSSIONS

The results presented in the research demonstrate that all examined determinants of online purchase and all items from the survey are suitable and related to the marketing mix, trust, customer loyalty, customer satisfaction and purchasing decision. All set hypotheses have been confirmed. However, the higher impact of the relationship varies for each dominant and hypothesis. The marketing mix that consists of product, price, place, and promotion has an impact on the trust,

customer loyalty, and customer satisfaction on the social media market of Chumphon province. The fact that customer satisfaction is really important to get loyal customers, it is indeed important that marketing mix and its elements can help business providers to know the factors that their customers are looking for when purchasing products. [37] Consumer satisfaction is a present issue in the accomplishment of any business model, customary or online. While trust has the strongest significant relationship with purchasing decisions. In other words, greater perceived trust in the online sellers motivates customers' decision to shop online. [38] Trust, customer satisfaction, and customer loyalty have a significant influence on customers' intention to purchase a product recommended by the recommender systems. The developed model and the findings of this research will help social media platforms to enhance the recommender systems based on the factors that contribute to their quality [39]. Shopping online cannot survive without understanding the online customer loyalty formation process. Online customer loyalty has a direct effect on the revenue and profitability of a company. Because customer loyalty is necessary for setting up long customer connections [40]. It is confirmed that in the recent five years, consumer loyalty reviews have gotten to be regular in numerous budgetary organizations. Finally, it can be concluded that the marketing mix has a key role in fulfilling the expectations of all consumers. The study recommends for adoption of policy, managerial and regulative measures especially intended to enhance the management for supporting online purchasing as means to enhancing the mode of online purchasing for the growth of online trade.

VII. RECOMMENDATIONS

Research Contributions

Theoretical implications

This study provides a foundation for future researchers in studying the consumer behavior of Thailand online shoppers. Further research can be possible by increasing sample size including a rural population that may reflect the entire scenario of consumer behavior of online shopping in Thailand. Furthermore, the variables that have been identified in this study may not be sufficient rather more variables are to be considered in future research. Researchers may also look for factors that influence online shopping behavior, customer satisfaction, and loyalty.

Managerial implications

The findings of the paper provide managers guidelines about the attributes that must be included in their products and

service quality, mode of delivery channel, payment gateway, security, trustworthiness, and pricing strategy. Managers should choose the social network for advertisement. As, until now the online payment systems through a credit card are not that much available, managers must maintain the cash on a delivery program to gain trust among the customers. To elevate the touch and feel concerned, managers can send alternative products to the customer to choose from options and pay after they prefer one. If the managers consider these factors, they might have a competitive advantage in the market.

Recommendations for Further Research

Future research may need to consider lengthening the findings of this study to investigate with the greater volumes of samples, such as communities remotely away from the city center by focusing on the patterns of online selling consumer products. In addition, applying in depth interview would also be useful to attain the more insightful data. At the same time, the future research may need to add other variables related to the internet network and the model of selling online product.

VIII. CONCLUSION

Online shopping became a regular part of people's lives. Due to social media, the traditional mode of purchase has become inadequate for some individuals. People now prefer simpler modes for acquiring products and reaching stores, and it can be stated that the Internet has fundamentally changed the consumers' ideas on convenience, speed, price, and product and service information. As a result, consumers have found a new approach to create value and build opportunities to choose products. As well as creating a relationship between consumers and sellers. This study intended to reveal the scale on which the following variables marketing mix, trust, customer loyalty, and customer satisfaction affect the dependent variable purchasing decision. The model developed for this study was tested using the multiple regression analysis. The results demonstrated a high level of reliability and validity between variables. The present model explained that the variation relates to all dependent variables. The results of this study confirmed that marketing mix variables which include product, price, place, and product have a significant positive effect on trust, customer loyalty and customer satisfaction. Likewise, the results of variables including trust, customer loyalty and customer satisfaction have a significant positive effect on purchasing decision. Thus emphasizing the importance of its implementation. This paper should contribute to a better understanding of the determinants that affect trust, customer loyalty and customer satisfaction, so customers would continue purchasing online.

Likewise, the paper should also provide guidelines to online stores for better definitions of their marketing strategies

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The Sentiment of Customers in Thai Life Insurance using Structural Equation Modeling (SEM)

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Abstract— *The relationship between insurance firms and customers is a significant part of maintaining trust, benefits, and economic growth. Social customer relationship management (SCRM) explains the customer management on the stage of customer acquisition, customer retention, and customer termination with a social network. SCRM is adopted by utilizing the opinion expressed on social media to improve customer satisfaction, retain customers, and increase persistency rate*

This task presents the customers' opinion in each SCRM stages based on customer's demographic, experience, and knowledge in Thai life insurance. A questionnaire survey was conducted for this study and obtained customer opinions from 374 respondents. We utilize structural equation modeling (SEM) techniques to the SCRM of customer emotion to Thailand life insurance service and product in the social network to express the structural relationship of factors. The study offers a comprehensive model to help further research of customer management in the Thai Life Insurance Company, provider, and agent in the social media era.

Keywords— *Thai life insurance, Social Customer relationship management (SCRM), customer satisfaction, structural equation modeling (SEM)*

I. INTRODUCTION

Economy and financial markets annual growth reported that the market size of primary life insurance is US\$2800bn, and reinsurance life market is US\$105bn in the 2020, Swiss Re institute's sigma financial report. Thailand's insurance market also archived US\$18.7bn (THB 587bn) in 2020. The annual growth rate (GAGR) is over 2.1% between 2019 and 2024. For the growing life insurance market, customer's intention is an essential factor in estimating the contact conclusion, possibility, or others. Prospecting the tendency and change to the active customer from hopeless is exciting for both agents and insurance companies. In Thailand, there are five life insurance companies are nominated in the top 100 global rankings according to Million Dollar Round Table (MDRT). The robust medium-term economic growth plan strategy is important, especially in a fight over the market of Thailand. As a potential problem of the market, the Thai Life Assurance Association (TLAA, 2020) reported that the number of new active policies is 3641,267 (13.49 % up), the loss in volume is 1,715,345, and the number of loss policies is 1,669,305.

Maintaining and retain active customers contributes to the growing insurance business. Hence, our study focuses on customer satisfaction with classification to explore patterns and their relationship by defining three main issues (problems) observed as customers complain. 'Service evaluation,' 'claim settlement process, and 'policy cancellation motive' is a primary issue of the observed object of customers intention.

For finding pattern analysis, we borrow the concept and methodology of the structural equation model (SEM) by creating a model which describing customer satisfaction tendency. Customer satisfaction is helpful to increase the persistency rate for the life insurance business [1]. Hence, customer satisfaction is analyzed from many viewpoints, such as analyzing policyholders' patterns, purchasing life insurance products, and the relationship between loyalty and customer satisfaction in life insurance [2-5]. For finding the dominant factor of policy cancellation and claim the problem with customer satisfaction, we assume factor group to correlate with customer satisfaction. One group is service evaluation with personal status; gender, age, status, education, experience, and policyholder's status are the factors to evaluate.

Social customer relationship management (SCRM) extends CRM to integrate customer's feedback from the social network. Nowadays, mutual evaluation is important. We use this customer feedback as supervised data based on data mining. Path and pattern analysis of SEM provides the direction of influence with a hierarchical structure. Our study explores the dominant factor of service quality, claim, and policy cancellation with customer satisfaction, contributing to the continuously growing Thailand Insurance business.

II. RESEARCH OBJECTIVES

The objectives of this research article were 1) to study and to analysis the customer dissatisfaction from the customer complaint of Thai life insurance in social media, and 2) to present the SEM model related to the SCRM on customer satisfaction factors of Thai life insurance service which express from the social media.

III. LITERATURE REVIEW

Structural Equation Modeling (SEM)

What are factors of customer attitude/decision to the life insurance is one of the exciting topics of factor and path analysis for understanding customer's decision. Structural equation model (SEM) integrates multivariate techniques such as measurement theory, factor analysis, path analysis, regression, and simultaneous equations into one model fitting framework. It designs a multivariate relationship of observed/unobserved values considering indirect and total effects as well as direct variables. The methodology is useful to measure the whole relationship complex and multi-faceted constructs caused by dependent variables. Independent variables (IVs), either continuous or discrete, and one or more dependent variables (DVs), either continuous or discrete, are examined to know the relationship [6]. Either variables (directory observed) or latent variables (unobserved; not directory observed) were used to measure both IVs and DVs in a model of SEM. Causal modeling, causal analysis, simultaneous equation modeling, analysis of covariance structure, path analysis, or CFA are other names of SEM [6]. Many previous works were done by SEM technique for finding the significance between key features of their task. Same as the insurance domain, SEM was used to evaluate the perceived service quality on behavioral outcomes of customers of life insurance service in India. It mentions the empirical support for a modified model, wherein service quality, customer satisfaction, and value perceptions are antecedents of future intentions of customers and the need for a comprehensive approach to service quality in life insurance. It includes agent service quality, value perceptions, and

overall customer satisfaction [7]. Data envelopment analysis (DEA) is used for analyzing efficiency among insurance company's decision-making units (DMU) for performance evaluation. Before the performance measurement by using DEA, the SEM verified the model [8]. Online life insurance policyholders in Delhi/NCR answer the structured questionnaires with an in-depth interview. The analyzed data mentions a substantial relationship between customer satisfaction and loyalty [9]. It shows the customer satisfaction mediates customer loyalty and social influence, and service quality. For model evaluation, some research use a score of Akaike's information criterion (AIC) and the Bayesian information criterion (BIC) are used for finding an optimal model of path diagram from the alternative by specifying the best model parameters [10]. In this research, we describe the path diagram with 'service evaluation', 'claim settlement processes', and 'policy cancellation motive' variables to know the mutual relationship of customer satisfaction. The next section is research methods, research results and discussions, respectively.

IV. RESEARCH METHODS

Research Design

We started from the quantitative research which were used and research tools and questionnaires. Data were collected from 374 Thai respondents with different demographic characteristics (age, gender, status, education, experience, and policy owner status). The target respondents for our questionnaire were prospective customers, current customers, the policy owners (insured) including non-customers. Factor data from 18 keys were analyzed by using descriptive statistics and Structural Equation Modeling (SEM).

The questionnaire preparation started by tracking of the dissatisfaction issues from customer opinion on social media. We developed the "Sentiment extraction tool" for tracking the sentiment such positive, negative or neutral sentiments using keywords on web-blogs named "Pantip.com" in the topic of Thai life insurance [11]. Pantip.com is one of a famous free website in Thailand and there are full with numerous posts on service associated dissatisfaction of customers. Our sentiment extraction tool utilized the techniques of text processing (Thai language) in the task of sentiment analysis for finding a negative word related to contents. This task deployed the useful from our previous task and another related works of text extraction [12].

This task designed the questionnaire separated into three SCRM stages which including customer acquisition stage, customer retention stage, customer termination stage and all of the questions has the purpose to collect information about

the service dissatisfaction, the follow up process dissatisfaction and the cancellation process dissatisfaction. In part of service, there are three factors including with reliability, knowledge, and personality. These are service which customer can preserve and give scoring in the questionnaire. Next part is the follow up factor, it consists of 'cannot contact'- CNContact, 'get compensative return long period'- MoneyGetLong, and 'cannot make claim'- CNClaim. Last part is the cancellation process which contains the factors of 'not get good service' - NotGoodServ, 'policy does not meet requirement'-PolNotReq, and 'move Life insurance Company'-MvCom.

Hypothesis

The data revealed in the table show analysis the factor analysis of customer relationship management, the researcher provides a detailed description in relation to each hypothesis in the following;

H1: The demographic of gender, age, status, and education has an influence on the Service of SCRM.

H1.1: The demographic of gender has an influence on the Service of SCRM.

H1.2: The demographic of age has an influence on the Service of SCRM.

H1.3: The demographic of status has an influence on the Service of SCRM.

H1.4: The demographic of education has an influence on the Service of SCRM.

H2: The demographic of experience in life insurance has an influence on the Service of SCRM.

H3: The demographic of policy owner status has an influence on the Service of SCRM.

H4: The demographic of gender, age, status, and education has an influence on the follow up of SCRM.

H4.1: The demographic of gender has an influence on the follow up of SCRM.

H4.2: The demographic of age has an influence on the follow up of SCRM.

H4.3: The demographic of status has an influence on the follow up of SCRM.

H4.4: The demographic of education has an influence on the follow up of SCRM

H5: The demographic of experience in life insurance has an influence on the follow up of SCRM.

H6: The demographic of policy owner status has an influence on the follow up of SCRM.

H7: The demographic of gender, age, status, and education has an influence on the cancel service of SCRM.

H7.1: The demographic of gender has an influence on the cancel service of SCRM

H7.2: The demographic of age has an influence on the cancel service of SCRM.

H7.3: The demographic of status has an influence on the cancel service of SCRM.

H7.4: The demographic of education has an influence on the cancel service of SCRM.

H8: The demographic of experience in life insurance has an influence on the cancel service of SCRM.

H9: The demographic of life insurance policy has an influence on the cancel service of SCRM.

V. RESEARCH RESULTS

Data Collection in questionnaire survey

		Frequency	Percentage
Gender	Female	209	55.9
	Male	165	44.1
	Total	374	100.0
Age	20 yrs. or less	2	0.5
	21-30 yrs.	31	8.3
	31-40 yrs.	86	23.0
	41-50 yrs.	149	39.8
	51-60 yrs.	92	24.7
	61 yrs. or up	14	3.7
	Total	374	100.0
Education	Less than Bachelor's degree	23	6.1
	Bachelor's degree	230	61.5
	Master's degree	111	29.7
	Doctoral	10	2.7
	Total	374	100.0

Table 1. Respondent characteristics

Our path model was analyzed using the AMOS 24.0 statistical package. The factor analysis results are presented in Fig.1. The factor loading of the items reached a significant level and its standardized parameter as Table 2.

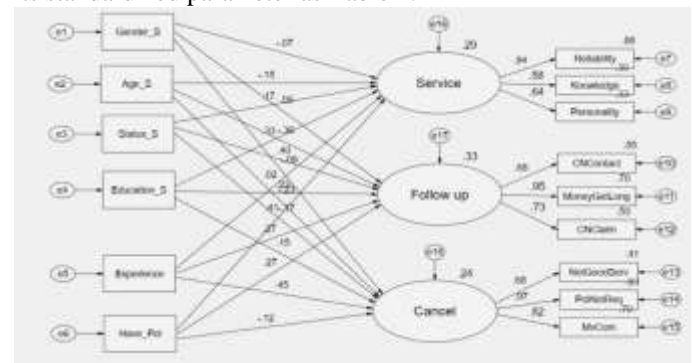


Fig.1 The proposed model of the factor analysis of service satisfaction on SCRM

Index	Criteria	Result	References	Result
Chi-Square = 45.017 df = 35.00				
Sig.	> 0.05	0.12	Hair et al. (2010), Bollen (1989) and Sorbon (1996)	Good fit
CMIN/df	< 2.0	1.286	Bollen (1989), Diamantopoulos, Sigauw (2000)	Good fit
GFI	≥ 0.90	0.985	Hair et al. (2010), Browne and Cudeck (1993)	Good fit
AGFI	≥ 0.90	0.949	Baumgartner, H., & Hombur, C., 1996, Gefen et al (2000)	Good fit
NFI	≥ 0.90	0.982	Hair et al. (2010), Mueller (1996)	Good fit
IFI	≥ 0.90	0.996	Hair et al. (2010), Mueller (1996)	Good fit
CFI	≥ 0.90	0.996	Hair et al. (2010), Mueller (1996)	Good fit
RMR	< 0.05	0.021	Diamantopoulos, Sigauw (2000)	Good fit
RMSEA	< 0.05	0.027	Hair et al. (2010), Browne and Cudeck (1993)	Good fit

Table 2 Fit Indices for Proposed the model the factor analysis of Customer Relationship Management

Test of the Model

The data revealed of structural equation modeling (SEM) of model the factor analysis of Customer Relationship Management after modification. The result show the Chi-Square value is the traditional measure for evaluating overall model fit and assesses the magnitude of discrepancy between the sample and fitted covariance matrices (Hu and Bentler (1999). A good model fit would provide an insignificant result at a 0.05 threshold (Barrett, 2007). Result found acceptable threshold levels and consistent with the concept Hair et al. (2010), Bollen (1989) and Sorbon (1996) the result shows The Chi – Square = 45.017, df = 35.0, Sig. = 0.120 > 0.05, CMIN/df. = 1.286 < 2.0, Furthermore, The results of the structural equation modeling analysis the model. The factor analysis of Customer Relationship Management after modification are demonstrated relatively a reasonable fit of the seven index of model to the data on the basis of a number of fit statistics including

(1) Comparative Fit Index (CFI) = 0.996 > 0.90 result consistent with the concept Hair et al. (2010) a good comparative Fit Index should more than 0.90. And a value of CFI more than 0.95 is presently recognized as indicative of good fit (Hu and Bentler, 1999)

(2) Goodness of Fit Index (GFI) = 0.985 > 0.90 result consistent with the concept Hair et al. (2010) and Mueller (1996) Goodness of Fit Index (GFI) is a measure of fit between the hypothesized model and the observed covariance matrix and a good Goodness of Fit Index should more than 0.90.

(3) Adjusted Goodness of Fit Index (AGFI) which is affected by the number of indicators of each latent variable result found = 0.949 > 0.90 and between 0.80 – 0.90 are considered as a reasonable model consistent with the concept Joreskog and Sorbom (1989). The GFI and AGFI range between 0 and 1, with a cutoff value more than of 0.80 generally indicating acceptable model fit (Baumgartner, H., & Hombur, C., 1996).

(4) Root Mean Square Error of Approximation (RMSEA) mean avoids issues of sample size by analyzing the discrepancy between the hypothesized model, with optimally chosen parameter estimates, and the population covariance matrix (Hooper, D., Coughlan, J., & Mullen, M.R., 2008). Result found RMSEA = 0.027 < 0.05 acceptable threshold levels consistent with the concept Hair et al. (1998;2006), Browne and Cudeck (1993) indicative of acceptable model fit.

(5) Root Mean Square Residual (RMR) are the square root of the discrepancy between the sample covariance matrix and the model covariance matrix. Result found RMR = 0.021 < 0.05 this acceptable threshold levels consistent with the concept Hu, L., & Bentler, P. M. (1999). The standardized root mean square residual removes this difficulty in interpretation, and ranges from 0 to 1, with a value of 0.08 or less being indicative of an acceptable model (Hu, L., & Bentler, P. M., 1999)

(6) Normed fit index (NFI) to analyzes the discrepancy between the chi-squared value of the hypothesized model and the chi-squared value of the null model (Bentler, P. M., & Bonett, D. G., 1980). Result found NFI = 0.982 > 0.9 this acceptable threshold levels consistent with the concept Hair et al. (2010). And more recent suggestions state that the cut-off criteria should be NFI more than 0.80 values for this statistic a good fit (Hu and Bentler, 1999).

(7) Incremental fit index; (IFI) result found = 0.996 > 0.9 this acceptable threshold levels and the values close to 1 indicate a very good fit consistent with the concept Hair et al. (2010).

The result in table show structural equation modeling analysis the model The factor analysis of Customer Relationship Management are strongly suggest that each set of items represents a single underlying construct and provides evidence for discriminate validity or OK Fit Confirm, Overall, the data indicate an excellent fit for the testing model. The data revealed in the table show analysis the factor analysis of customer relationship management, the researcher provides a detailed description in relation to each hypothesis in the following;

The results reject hypothesis H1.1 or the demographic of gender not influence to the service of customer relationship management (t. = -1.486, sig. = 0.137 > 0.05), this was significant at or below the 0.05 level.

The results accept hypothesis H1.2 or the demographic of age has an influence on the service of customer relationship management (t. = -2.677, sig. = 0.007 < 0.05), and the coefficient -0.15, can be concluded that the age has a negative influence on the service of customer relationship management and has effected to changes at 29.00%, this was significant at or below the 0.05 level.

Hypothesis	Variable	Path	Variable	Coefficient	S.E.	t	Sig.	R ²
H1	Service	←	Gender	-0.07	0.08	-1.486	0.137	29.00%
H2	Service	←	Age	-0.15	0.04	-2.677	0.007*	29.00%
H3	Service	←	Status	0.17	0.07	3.08	0.002*	29.00%
H4	Service	←	Education	0.33	0.06	6.657	0.000*	29.00%
H5	Service	←	Experience	0.02	0.1	0.435	0.664	29.00%
H6	Service	←	Have	0.41	0.1	6.83	0.000*	29.00%
H7	Follow up	←	Gender	0	0.07	0.042	0.966	33.00%
H8	Follow up	←	Age	-0.36	0.04	-5.128	0.000*	33.00%
H9	Follow up	←	Status	0.4	0.08	5.242	0.000*	33.00%
H10	Follow up	←	Education	0.23	0.07	3.119	0.002*	33.00%
H11	Follow up	←	Experience	0.28	0.09	4.167	0.000*	33.00%
H12	Follow up	←	Have	0.27	0.09	3.905	0.000*	33.00%
H13	Cancel	←	Gender	-0.09	0.08	-1.537	0.124	24.00%
H14	Cancel	←	Age	-0.23	0.04	-4.048	0.000*	24.00%
H15	Cancel	←	Status	-0.17	0.06	-3.004	0.003*	24.00%
H16	Cancel	←	Education	0.15	0.05	2.963	0.003*	24.00%
H17	Cancel	←	Experience	0.45	0.09	7.239	0.000*	24.00%
H18	Cancel	←	Have	-0.12	0.09	-2.035	0.042*	24.00%

Table 3. Analysis statistics the structural equation modeling analysis of the factor analysis of service satisfaction on SCRM

The results accept hypothesis H1.3 or the demographic of status has an influence on the service of social customer relationship management (t. = 3.080, sig. = 0.002 < 0.05), and the coefficient 0.17, can be concluded that the status has a positive influence on the service of SCRM and has effected to changes at 29.00%, this was significant at or below the 0.05 level.

The results accept hypothesis H1.4 or the demographic of education has an influence on the service of SCRM (t. = 6.657, sig. = 0.000 < 0.05), and the coefficient 0.33, can be concluded that the education has a positive influence on the service of SCRM and has effected to changes at 29.00%, this was significant at or below the 0.05 level.

The results reject hypothesis H2 or the demographic of experience in life insurance not influence to the service of SCRM (t. = 0.435, sig. = 0.664 > 0.05), this was significant at or below the 0.05 level.

The results accept hypothesis H3 or the demographic of life insurance policy has an influence on the service of SCRM (t. = 6.830, sig. = 0.000 < 0.05), and the coefficient 0.41, can be concluded that the life insurance policy has a positive influence on the service of SCRM and has effected to changes at 29.00%, this was significant at or below the 0.05 level.

The results reject hypothesis H4.1 or the demographic of gender of follow up not influence to the service of SCRM (t. = 0.042, sig. = 0.966 > 0.05), this was significant at or below the 0.05 level.

The results accept hypothesis H4.2 or the demographic of age has an influence on the follow up of social customer relationship management (t. = -5.128, sig. = 0.000 < 0.05), and the coefficient -0.36, can be concluded that the age has a negative influence on the follow up of SCRM and has effected to changes at 33.00%, this was significant at or below the 0.05 level.

The results accept hypothesis H4.3 or the demographic of status has an influence on the follow up of SCRM (t. = 5.242, sig. = 0.000 < 0.05), and the coefficient 0.40, can be concluded that the status has a positive influence on the follow up of SCRM and has effected to changes at 33.00%, this was significant at or below the 0.05 level.

The results accept hypothesis H4.4 or the demographic of education has an influence on the follow up of SCRM (t. = 3.119, sig. = 0.002 < 0.05), and the coefficient 0.23, can be concluded that the education has a positive influence on the follow up of SCRM and has effected to changes at 33.00%, this was significant at or below the 0.05 level.

The results accept hypothesis H5 or the demographic of experience in life insurance has an influence on the follow up of SCRM (t. = 4.167, sig. = 0.000 < 0.05), and the coefficient 0.28, can be concluded that the experience in life insurance has a positive influence on the follow up of SCRM and has effected to changes at 33.00%, this was significant at or below the 0.05 level.

The results accept hypothesis H6 or the demographic of life insurance policy has an influence on the follow up of SCRM (t. = 3.905, sig. = 0.000 < 0.05), and the coefficient 0.27, can be concluded that the life insurance policy has a positive influence on the follow up of SCRM and has effected to changes at 33.00%, this was significant at or below the 0.05 level.

The results reject hypothesis H7.1 or the demographic of gender not influence to the cancel service of SCRM (t. = -1.537, sig. = 0.124 > 0.05), this was significant at or below the 0.05 level.

The results accept hypothesis H7.2 or the demographic of age has an influence on the cancel service of SCRM (t. = -4.048, sig. = 0.000 < 0.05), and the coefficient -0.23, can be concluded that the age has a negative influence on the cancel service of SCRM and has effected to changes at 29.00%, this was significant at or below the 0.05 level.

The results accept hypothesis H7.3 or the demographic of status has an influence on the cancel service of SCRM (t. = -3.004, sig. = 0.003 < 0.05), and the coefficient -0.17, can be concluded that the status has a negative influence on the cancel service of SCRM and has effected to changes at 24.00%, this was significant at or below the 0.05 level.

The results accept hypothesis H7.4 or the demographic of education has an influence on the cancel service of SCRM (t. = 2.963, sig. = 0.003 < 0.05), and the coefficient 0.15, can be concluded that the education has a positive influence on the cancel service of SCRM and has effected to changes at 24.00%, this was significant at or below the 0.05 level.

The results accept hypothesis H8 or the demographic of experience in life insurance has an influence on the cancel

service of SCRM ($t. = 7.239$, $sig. = 0.000 < 0.05$), and the coefficient 0.45, can be concluded that the experience in life insurance has a positive influence on the cancel service of SCRM and has effected to changes at 24.00%, this was significant at or below the 0.05 level.

The results accept hypothesis H9 or the demographic of life insurance policy has an influence on the cancel service of SCRM ($t. = -0.235$, $sig. = 0.042 < 0.05$), and the coefficient -0.12, can be concluded that the life insurance policy has a negative influence on the cancel service of SCRM and has effected to changes at 24.00%, this was significant at or below the 0.05 level.

VI. DISCUSSIONS & CONCLUSION

From the model of SEM related to the service dissatisfaction of customer opinion from social media, we found that almost all of the demographic has significant on three of SCRM stages, including the service process in customer acquisition, follow up process in customer retention, and cancelation process in customer termination except gender, which does not make significant. Furthermore, experience in Thai life insurance and policy owner status also has significance to all SCRM stages. In summary, the SCRM for managing customer dissatisfaction requires prioritizing problem-solving in all issues because all issues impact customer satisfaction. Therefore, we aim to prioritize the SCRM tasks to manage the customer dissatisfaction problems for future work.

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Influence of urban areas on the illnesses of NCDs in the community

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Abstract— The influence of urban areas on the illnesses of the population of NCDs was lacking a clear indication, especially the distance from urban areas, thus affecting the public health promotion planning. If the illnesses of NCDs did not vary by distances, public health promotion planning needed to be implemented in all areas, posing a growing challenge. This study aimed to (1) study food consumption behavior of suburban and rural communities and (2) study the influence of distance from the city on the illnesses of NCDs in the community. The study areas were suburban communities (San Pa Pao Sub-district, San Sai District) and rural communities (Thep Sadet Sub-district, Doi Saket District), Chiang Mai Province. Qualitative research methods were used in conjunction with the quantitative research by using a questionnaire about 125 samples of data on consumer behavior. Then, the results were analyzed by preliminary statistics. The results of the study showed that the situation of illness with NCDs of people in both suburban and rural communities tended to increase significantly. While the consumption behavior of both districts relied on pre-packaged foods or raw materials for cooking from the market, it was found that in suburban communities accounted for 88 percent and rural communities accounted for 70 percent. Consumption behavior was influenced by NCDs that were not affected by distance. The findings provided information that would give those involved in healthcare and promotion the need for a knowledge-promotion planning and health care guidelines to prevent NCDs, which covered areas in rural and remote cities.

Keywords— NCDs, urban influence on NCDs, consumption behavior

I. INTRODUCTION

The World Health Organization reports the number of deaths from non-communicable diseases (NCDs) in 2008, was at 63 per cent of the world population [1], if divided by deaths from cardiovascular disease, cancer, chronic respiratory disease, diabetes and other non-communicable diseases accounted for 48, 21, 12, 4, and 15 per cent respectively. In 2012 mortality rate from these diseases increased to 68% and it is estimated that before 2030 the mortality rate from all four diseases will increase to 75% [2]. Therefore, the death of such non-communicable diseases is a challenge that the society requires appropriate management practices and need to understand the root cause of the problem.

On the other hand, the factors that causes non-communicable diseases can be summarized from 2 main factors, such as;

daily life behavior and the environment. Both factors are influenced by urbanization, urban areas are rapidly expanding and most of the world's population lived in urban areas [3]. The shift from rural to urban living environments has changed population behavior, regarding the food system of the community from the past, where people used to prepare or provide food by themselves in their respective household, to the current era where people are dependent on food from outside their household. Along with the transformation of food from the past, where people eat fresh food, to the current era where people eat frozen and processed food kept and preserved for long periods [4]. Furthermore, the urban environment has been a polluted environment with an increasing air pollution trend. According to [5], it was found that a standardised mortality ratio for cardiovascular disease was very significant and had a positive correlation with urbanization at a confidence level of 0.01, with 2.2% of Thai

cardiovascular disease mortality associated with an increase in the population of 100 people per square kilometre.

The current situation of death from non-communicable diseases is higher than death from other causes combined. It is a warning sign of non-communicable diseases occurring all over the world. In Europe and the western Pacific region, the high death rate of men from NCDs accounted for 13 and 8 times more if compared to death caused by other diseases. Changes in food behavior affecting community health due to urban lifestyles therefore, it is challenging and requires basic research to create an understanding that can explain the causes and appropriate management approaches [6] to optimize, promote and maintain good health in the community most effectively.

II. RESEARCH OBJECTIVES

This study investigated the extent of the city's influence on NCDs disease in communities far from urban areas and therefore has the following objectives.

- (1) Study food consumption behavior of urban and rural communities; and
- (2) Study the influence of distance from the city on the condition of non-communicable diseases of the community.

III. RESEARCH METHODS

This study was qualitative research, together with quantitative research. The community consumption behavior data were collected from 125 households and divided into 62 samples in San Pa Pao sub-district and 63 households in Thep Sadet sub-district and discuss the results with preliminary statistics. The major areas of study are as follows:

A. Definition

The definition of “non-communicable disease”, means cardiovascular disease cancer, chronic respiratory diseases and diabetes. which are aimed at reducing premature deaths due to these four NCDs During the UN General Conference 2011 [7]. The details of diseases related to NCDs under this definition are as follows [8]; 1) All types of cancer were considered in the study. 2) Cardiovascular disease refers to the following groups of cardiovascular disabilities: hypertension (high blood pressure), sudden myocardial ischemia, heart attack, stroke, peripheral vascular disease, heart failure, rheumatic heart disease, congenital heart disease, and cardiomyopathies, all these groups of diseases are the main contributors to other non-communicable diseases. 3) chronic respiratory disease refers to asthma and chronic obstructive pulmonary disease because both diseases are a big problem in developing countries. and 4) diabetes, defined as type II diabetes, associated with hyperglycemia.

due to insulin deficiency. Moreover, most diabetics patients worldwide are type 2, diabetes patients.

B. Consumer Behavior Data Collection

Factors that make humans sick with non-communicable diseases, especially heart disease, diabetes, cancer and chronic respiratory disease has complex components, which [9] and [10] concluded that there are generally two groups of risk factors: modifiable risk factors and non-modifiable risk factors. In the first group, such as human behavior and the influence of the urban city, working and living environment, social and cultural factors. The latter group is uncontrollable factors such as age, sex, genetics, etc. The general risk factors are both modifiable and fixed. It indicates the level of a person's likelihood of contracting an NCD through a condition known as an intermediate risk factor. These are biological factors of the body, such as having higher blood pressure than normal, rise in blood sugar than normal, abnormal blood lipids and overweight/obesity. A high atypical condition is an indicator of a high likelihood that if left unattended, it will lead to chronic illness, such as heart disease, cancer, chronic respiratory disease. and diabetes, etc. Such non-communicable diseases can be prevented in the case of risk factors that can be adjusted. That is related to the traditional lifestyle of eating unhealthy food. lack of exercise, smoking and drinking alcohol by adjusting food consumption behavior, and also adjust the working and living environment to be more conducive to exercise, etc. In this study, we focus on dietary behavior issues. Therefore, the community consumption behavior data were recorded to record the general risk factors of NCDs that cannot be adjusted or Modifiable. That is the pattern of food that the community consumes based on nutritional or non-nutritive nature, leading to community illnesses with NCDs.

C. Data collection methods and study area

This study included secondary data on death and NCDs morbidity. As for the data collection of the consumption behavior of the sample was done by keeping a record of the consumption of every meal for a period of 7 days (Sunday - Saturday), including the source of food consumed each day as the purchase of ready-made food or cooked food, e.g. boiled, steaming, grilling, etc. If it is cooking, where do they get the raw materials, purchased from the market or self-produced, and how many food ingredients do they use each time? Data were recorded in the study area from 2 sub-districts (Fig. 1), consisting of San Pa Pao Sub-district, San Sai District, Chiang Mai Province. Which is located far to the east of Chiang Mai. On Chiang Mai - Chiang Rai Road in about 10 kilometres and Tambon Thep Sadet Doi Saket District Chiang Mai Province

located in the same direction that is about 30 kilometres from Chiang Mai city.



Fig. 1 Study area

IV. RESEARCH RESULTS

Describing the influence of cities on NCD disease in communities far from urban areas by community consumption behavior factors. The mortality and morbidity situation of the communities. We must first understand the basic information in the area, and then proceed to consider the data on consumer behavior and the analysis of the influence of distance from the urban area to the community, which will further affect the consumption behavior of the community.

1. Mortality and Sickness Situation of NCDs in the study area.

From the differences in the location of the study area at San Pa Pao Sub-district, San Sai District, it is a flat area on the outskirts of Chiang Mai, it's a mixed society between urban and rural areas. While Thap Sadej Sub-district Doi Saket District is a high place away from Chiang Mai city of about 30 kilometres. It has a rural society style. When considering the NCDs disease data, it was found that San Pa Pao sub-district had a higher number of deaths from non-communicable diseases (Fig. 2) than Tambon Thap Sadej (Fig. 3), but when considering the trend of illness due to non-communicable diseases, it was found that both districts showed a similar trend (Fig. 4 and 5), and cardiovascular disease was mostly found in both areas. While there was a slight increase in diabetes, respiratory disease and cancer in Thap Sadej Sub-district. But the proportion of the increase is quite high in San Pa Pao sub-district.

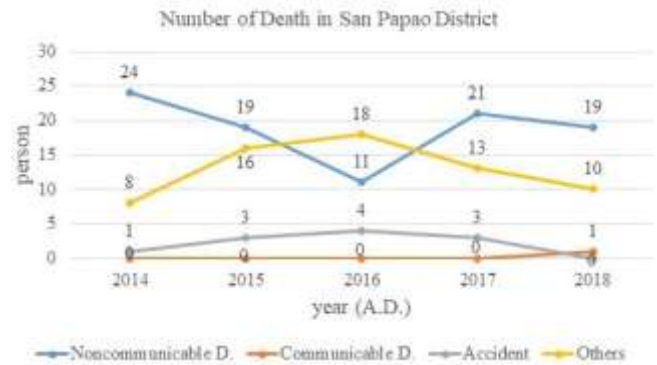


Fig. 2 Trends in the cause of death at San Pa Pao Sub-district, 2014-2018

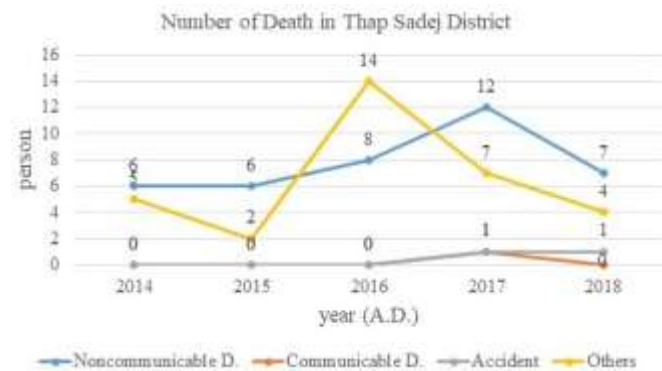


Fig. 3 The trend of causes of death, in Thap sadet Sub-district, 2014-2018

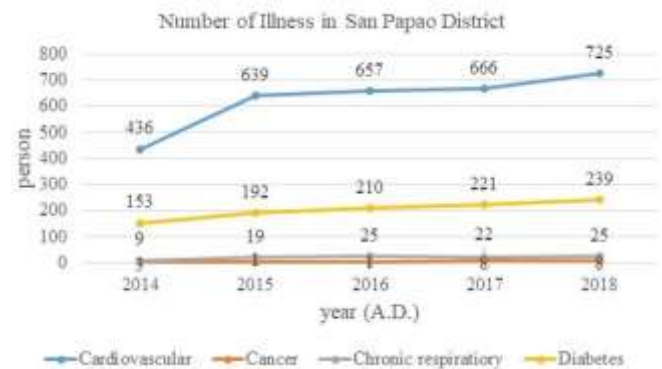


Fig. 4 Trend of illness with non-communicable diseases Classified by disease group in San Pa Pao Sub-district

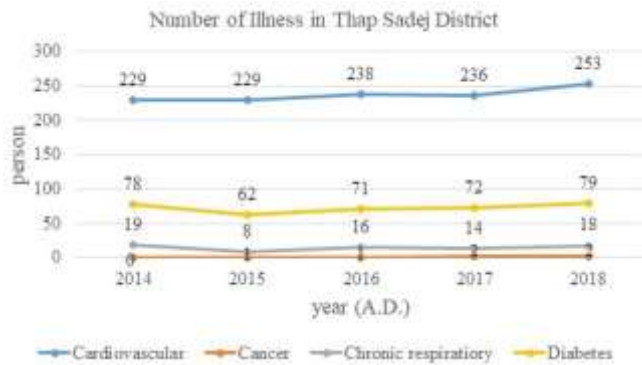


Fig. 5 Trend of illness with non-communicable diseases Classified by disease group in Thep Sadet Sub-district

2. Consumption Behavior

From the food consumption record of the samples in the study area. We can present information on the consumption behavior of the community in the form of food sources in 2 ways. buying or cooking food by themselves. How do those who cook themselves do it? considering the number of seasonings that are consumed in daily life. This will lead to the risk of contracting NCDs in the future.

Source of Food Consumed

The acquisition of food clearly shows the way of consumption. Mostly, urban dwellers have more meals from buying ready-to-eat food rather than cooking their food. Therefore, the purchase of ready-to-eat food by consumers will hinder them from getting to know or be aware of the quality of raw material used, and production cleanliness, including cooking methods. Thus, causing a risk of non-communicable diseases. Thus, this study divided the food acquisition system into two ways: 1) buying ready-to-eat food and 2) cooking self-made food. The results of the studying the food items consumed by the sample group found that the samples in San Pa Pao sub-district had the same amount of ready-to-eat food and cooked food, at a percentage of 50% of the total number of food items. While the food acquisition of the samples in Thep Sadet Sub-district found that 32% of ready-to-eat food are bought and 68% was accounted to be self-made food.

The samples in both areas had the majority of their food cooked by themselves. The sample group in Thep Sadet sub-district had a higher proportion than the sample in San Pa Pao sub-district, which was 68% and 50 per cent (Fig. 6-7), respectively, indicating that the samples in San Pa Pao sub-district had better cooking behavior. which is a higher urban style than the sample in Thep Sadet Sub-district. Due to the consumption pattern that is highly dependent on ready-to-eat food

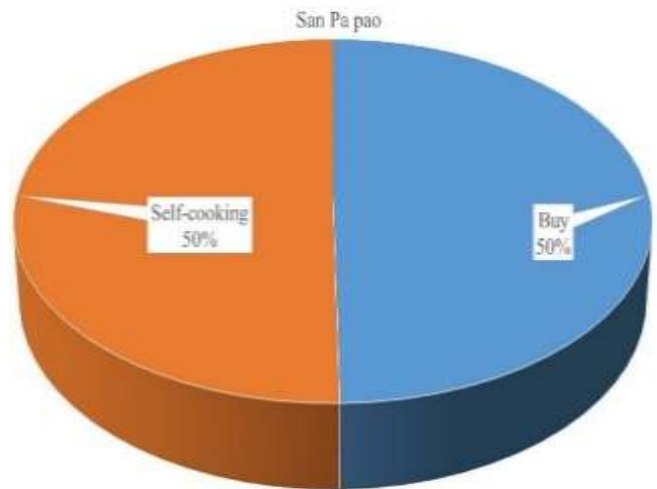


Fig. 6 Proportion of food sources consumed by San Pa Pao sub-district community

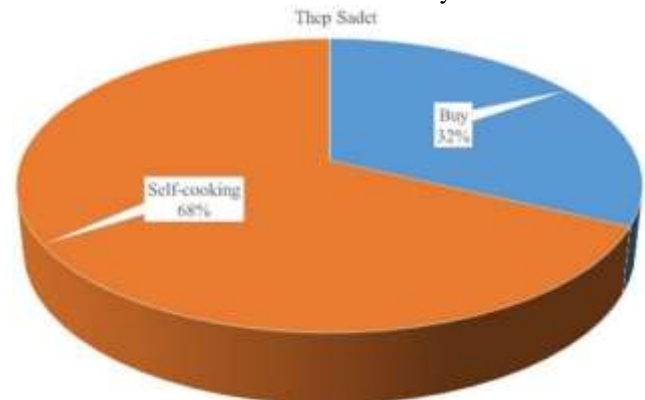


Fig. 7 Proportion of food sources consumed by Thep Sadet Sub-district community

Cooking Methods

Cooking affects the risk of NCDs. If most dishes are cooked by frying or stir-frying, makes the food greasy, and put the consumer at risk of atherosclerosis and obesity. Therefore, the methods of cooking that reduce the risk of getting sick from non-communicable diseases are boiling, steaming, spicy salads, etc.

The sample from San Pa Pao sub-district sample group consumes non-greasy food, such as; curry, which accounted for 26.3 per cent, followed by boiling accounted for 20.3 %, while steaming was the least common. The cooking methods of greasy food consist of the following? frying (15%), stir-frying (14.3%) (Fig. 8), while the sample in Thep Sadet sub-district found that curry was the second most common, 28%. down to boil accounted for 16.9 per cent, while frying and stir-frying accounted for 15.3% and 12.2% respectively (Fig. 9).



Fig. 8 Cooking methods of San Pa Pao Sub-District Community

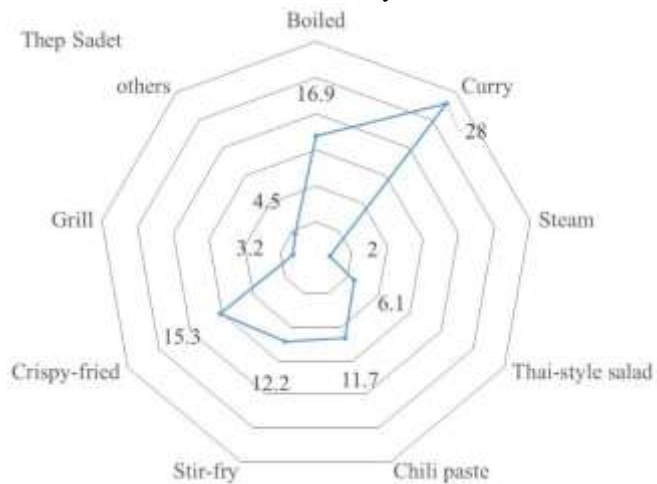


Fig. 9 Cooking methods of Thep Sadet Sub-district Community

From the cooking styles of both areas, it was found that the samples in San Pa Pao Sub-district and Thep Sadet Sub-district mostly boil and make curry, accounted for 46.6% in San Pa Pao sub-district and 44.9% in Thep Sadet sub-district. For frying and stir-frying cooking methods, the samples in San Pa Pao sub-district had their cooking done by frying and stir-frying, accounting for 29.3% and Thep Sadet Sub-district accounted for 27.5 per cent. Most of the foods are either boiled or curry making frying and stir-frying has a small proportion. This is a good sign for the politeness of the communities in both areas. However, Thep Sadet sub-district community is farther from the city than San Pa Pao community. There is a proportion of cooking methods in the way of grilling, frying and eating chilli paste more than San Pa Pao Sub-district. It can be said that the rural character of Thep Sadet sub-district had a greater effect on the traditional

community food consumption behavior than the San Pa Pao community, which is located closer to the urban area.

Consumption of Food

Indicators of the World Health Organization's risk group for non-communicable diseases are eating too much salty, sweet, and oily food. They affect and cause non-communicable diseases from the results, it was found that the seasonings used by the samples in San Pa Pao sub-district are in the salty food category, which had an average sodium content of 4,854.1 mg/person per day (Table 1). The samples in San Pa Pao sub-district consumed an average of 0.8 teaspoons of sugar per person per day. Meanwhile, the average oil consumption the sample used for cooking was 0.3 teaspoons per person per day. In Thep Sadet sub-district, it was found that the samples consumed salty seasonings at an average sodium intake of 3,424 mg per person per day. The sweetened condiment is an average of 0.4 teaspoons of sugar per person per day and the average amount of oil the sample used for cooking was 0.7 teaspoon per person per day.

Table 1 Consumption of food ingredients

Seasoning Consumption	Quantity		Suggestion below
	San Pa pao	Thep Sadet	
Sodium**	4,854	3,424	2,000
Sugar*	0.8	0.4	6
Oil*	0.3	0.7	6

Remarks: ** Unit, Milligram /Person/ Day

* Unit, Teaspoon/Person/ Day

Thep Sadet community consumed less amount of sodium than the San Pa Pao community, which was consistent with the cooking behavior in the rural communities where frying and grilling were used in lesser proportions. However, considering the doctor's recommended amount of sodium intake should not exceed 2000 milligrams per person per day. Both communities continued to consume food ingredients that exceeded the level of safety for health.

3. Influence of Distance from City on Community's Risk of NCDs

Working in a city where most of the time is spent commuting to work outside the home, gave the vocational structure a distinct character, with the city's influential communities having greater proportions of trade and service occupations than those in agriculture. The data from a population study in the year 2016 found that the people in San Pa Pao sub-district, in terms of occupation are mostly general contractor (38.44%), followed by trading (9.15%), while the agricultural

occupation was the least at 4.7%, compared to the people in Thep Sadet Sub-district. Most of them are engaged in agriculture, 85%, general contractor. accounted for 10%, and trading. 5 per cent. This indicated the influence of the city's economy on the behavior of communities in the study area. which resulted in the consumption behavior of the community. The occupations related to the city depended more on prepackaged food than the countryside. This corresponds to the proportion of food consumption in San Pa Pao sub-district, located near the city, which was higher than in Thep Sadet sub-district, which is located farther from the city area. However, if considered the behavior of the samples, that engage in self-made food, It was found that 56 per cent of the samples in the San Pa Pao sub-district purchased their raw materials/ingredient from the market. However, the position of their makes them close to the city, allowing them easy access. On the other hand, 41% bought their raw material/ingredient from local shops. In Thep Sadet sub-district, which is more than 30 kilometres from the city, 49 per cent relied on purchasing ingredients for cooking from local shops. While 38 per cent of the ingredients are reliant on hawkers and bought from the market, which accounted for 12 per cent, and this is done on occasional purchase, when they visit the city or have the opportunity to do some other things at the market at 12% (Table 2)

From the death and sickness situation, due to non-communicable diseases. Occupational structure and food source of the community, we can infer the influence of the city on the community's risk of illness with non-communicable diseases. Communities located near urban areas had higher rates of death and sickness from NCDs than those far from urban areas, related to the pattern of change in 3 characteristics:

- (1) Change in the occupational structure, where people engage as a general contractor and traders at a high rate. The characteristic of such an occupation requires urgency to compete with time. Therefore, it is more convenient to buy ready-made food than to cook by themselves. Hence, ready-to-eat food in the market reduced healthy nutrition.
- (2) Change in consumption behavior that changes from self-cooking to reliance on ready-made food in the market, where the nutritional value cannot be controlled as desired.
- (3) Change in behavior of the production of food raw materials in the household. This is the purchasing or buying of raw materials from the market with a high risk of chemical residues from production. Which is a major cause of the risk of non-communicable diseases.

Table 2 Community food raw materials sources

Material Sources	Proportion (%)	
	San Pa pao	Thep Sadet
Markets	56	12
Community shops	41	49
Food carriages	1	38
Convenience stores	2	1
others	1	1
Total	100	100

V. DISCUSSIONS

Based on the proportion of consumption behavior by purchasing food as high as the proportion of self-cooking in communities near the city, this was consistent with [4] that said, urbanization has shifted population behavior towards community food systems from predominantly self-prepared or self-supplied food in the household to reliance on food from outside the household. Along with the desired food form, that has shifted from fresh food to processed food and can be stored for a long time. while the cooking method that the community near the city prefers to consume food, are in form of frying and grilling, this is higher than communities far from urban areas. In addition, the consumption of sodium is more than the appropriate value for the body, which is a concern that [2] calls for the establishment of behaviors that are far from non-communicable diseases by reducing the amount of salt and fat in the diet. Secretariat of the Convention on Biological Diversity proposed guidelines for maintaining the health of the world's population[11], to be the cities role. This is because cities are a factor that can increase the likelihood of exposure to common risk factors leading to NCDs, such as changes in the physical activity and food system of the community.

The guidelines for avoiding non-communicable diseases according to the recommendations of the public health agency are to control health care by eating good, nutritious, non-toxic food, coupled with adequate exercise and take care of self-mood not to be stressed. An important UN recommendation for promoting good quality, nutritious and organic food is to promote access to food by communities and have enough purchasing power to meet the needs of the family, along with the use of economic measures to create barriers to access to poor quality food [12], but promoting community access to adequate food can be effectively and efficiently achieved through community awareness itself. Therefore, self-reliance and management of food self-care is

a very necessary approach in the process of promoting community health to be far away from non-communicable diseases.

VI. CONCLUSION

From the information found in this study, the influence of the city on the condition of illness due to non-communicable diseases can be summarized as Lifestyle in urban areas affects lifestyle changes in surrounding communities, even if both are located near and far from urban areas on different levels; The influence of the city had a greater effect on the risk factors of communicable diseases in communities located closer to the urban area than in those farther away in two ways: (1) The occupational structure of the nearby urban communities has changed, along with (2) the consumption behavior that relies more on pre-packaged food than to cook their food. This is a risk factor for inappropriate nutrient intake, which leads to illness from non-communicable diseases. In addition, when considering the source of raw materials used for cooking in the self-cooking behavior group, it was found that both communities depended on food ingredients from the market rather than the products by themselves. which is a risk factor for chemical residues in food raw materials leading to illnesses from non-communicable diseases. Therefore, self-sufficiency and food self-management is an essential approach in the process of promoting community health away from non-communicable diseases both in communities located near and far from the city.

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Residential area plan and earthquake hazard

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Abstract— Earthquakes remain unpredictable disasters, preparation must focus on disaster planning. Standardization in the design of a comprehensive earthquake-resistant building is one of the key preparations. This research was a study on the relationship of residential area planning related to building design standards management in earthquake disasters. The objective was to study various standards for building design, including the pattern of building damage and the victims in the building that affected the area plan or the location of the building in an earthquake disaster. Qualitative research was conducted using documented research. The results showed that in terms of standards or guidelines for the design of buildings for earthquake disasters, the area layout of the building's use was not properly defined. It was found that the indoor and outdoor areas, as well as the different heights of the building, showed different injuries and fatalities. The resting area had a higher ratio of casualties and fatalities than other areas. Areas near the walls of buildings adjacent to the exterior were found to be the most injured and fatalities. Different building materials or building styles affected the damage in different locations. Recent research was found that building layouts that facilitate escape from buildings had an effect on the injury or death of building occupants. It could be seen that the area plan, or location in a building, directly affected residents in different earthquake disasters, so proper management of the building's area plan was another important factor. Earthquake-resistant building design standards should include information on the risks of such an area plan, which may contribute to reducing the impact on residents during an earthquake

Keywords— Earthquake, Residential Building, Plan

I. INTRODUCTION

Earthquakes are natural disasters that cannot be predicted in advance but can be predicted using statistics and geological data. Earthquake disaster studies focus on planning and preparation. The earthquake damaged buildings and structures which directly affects residents leading to injuries and deaths. According to earthquake statistics, the impact of buildings on non-structural elements is often the most damaging to life and property. As can be seen from the San Fernando earthquake, Spain, the damage accounted for 79% of the total damage [1]. Damage from the impact of non-structural elements in a building causes a lot of damage. However, various standards and recommendations for the design of earthquake-resistant buildings and structures have been adopted with a focus on building shapes and materials, building materials, and fastening and installation of building materials. Meanwhile, a study on building damage affecting residents has concluded the causes and factors affecting many victims, and one of them is the condition of the floor plan and housing [2]. Therefore, the standards and recommendations for the design of such buildings and structures, including the matter of floor plans for use in different locations of the building, must be consistent and relevant. Comparative and

collaborative studies may lead to approaches to the planning of buildings and structures in earthquake disasters.

II. RESEARCH OBJECTIVES

To study standards related to building design, including the form and nature of damage to the building and the victims inside the building.

III. RESEARCH METHODS

Qualitative methods were used by documented research. The content of the study can be divided into two groups as follows: 1) Standards or guidelines for a building design for earthquake disasters (non-engineering construction systems), the selection from international authorities, and the reliability, including in countries with severe earthquake disasters and in countries that are specific to the context of each area. 2) Information on building damage, including the victims in the building by selecting the information of such damage and the impact that affects the layout or location in the building.

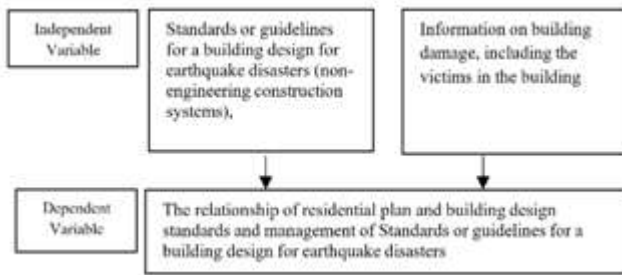


Figure 1 Conceptual framework

IV. RESEARCH RESULTS

The study of earthquake disasters emphasizes planning and preparation. One of the methods of planning and preparation is standards or guidelines for a building design for earthquake disasters (non-engineering construction systems). In countries that are affected or at risk of frequent and severe earthquakes, a variety of countermeasures have been developed such as International Association for Earthquake Engineering (IAEE)[3], Japan Institute of Architects(JIA)[4], Earthquake Engineering Research Institute(EERI)[5], National Society for Earthquake Engineering Study Group (NZNSEE)[6], National Building Code Development Project in Nepal[7] or Standard of the Department of Public Works and Town & Country Planning 1301-54 in Thailand[8]. Although countries in the affected area are less severe and less frequent compared to other countries, they are still vulnerable and prone to earthquakes along fault lines.

Table 1 shows examples of models and standards in building design for earthquake disasters (non-engineering construction systems) in various standards.

Standard	Site	Form & Configuration	Non-structure				Others
			Envelope	Windows	Ceilings	Furniture	
IAEE (UNESCO)		<ul style="list-style-type: none"> - Rectangular buildings are stronger than L-shape or U-shape. - The opening will reduce the strength of the building wall. - High-rise buildings should have regular structures from one floor to the next. - Building structures should be strong such that building components such as foundations, pillars, beams, walls, roof, etc. must be linked and bonded together. - Buildings designed to withstand earthquakes can sometimes be damaged due to weak foundations. 	<ul style="list-style-type: none"> - The use of fragile and fragile materials such as brick walls is mainly caused by poor bonding or butt welding. 				<ul style="list-style-type: none"> - The quality of the construction is damaged caused by the quality of the construction that is not standard, such as the connection of non-standard materials, including the use of non-standard materials.
JIA (Japan)		<ul style="list-style-type: none"> - Buildings with simple and regular shapes are more resistant to earthquakes than those with irregular shapes. - The horizontal shape of the building or the irregular or asymmetrical structure of the building will cause the building to suffer from seismic vibrations. - Avoid positions that weaken the strength and rigidity of the building in any part. 	<ul style="list-style-type: none"> - Fastening and installation as well as standards and quality of materials that are durable and strong must be taken into account. 				<ul style="list-style-type: none"> - Proper use of materials and sanitation, especially for one-building collisions, will reduce the damage and impact of earthquakes on buildings.
EERI (United States)		<ul style="list-style-type: none"> - Buildings should have three vertical resistance methods: shear walls, braced frames, and moment-resisting frames, which must be consistent with the functionality and aesthetics of the building. - There are suitable horizontal resistance systems, such as drilling openings in the ground plane for system holes or the core of the building. - The height of the base of the building should be reduced. - Designed for the height of each floor should be the same size. - Determining the functionality that affects the weight of the building on each floor and the whole building should be similar. - The design of the shape of the building is symmetrical. 					
NZNSEE (New Zealand)			<ul style="list-style-type: none"> - Exterior wall structures, window openings, and curtain walls should take into account the choice of material, connection points with the building structure and installation characteristics, as well as the proportions of the exterior walls. - Installation of systematic equipment should be installed separately from the ceiling. - The installation of necessary equipment for occupants in the building in the event of an earthquake should be taken 				<ul style="list-style-type: none"> - Connections between buildings should be adjustable in order to prevent damage from one building to another.

Standard	Site	Form & Configuration	Non-structure				Others	
			Envelope	Windows	Ceilings	Furniture		Others
AS 1170-4:2007 (Australia)							<ul style="list-style-type: none"> - The interior design of each type of building should be related to the risk conditions of the location with different seismic intensity. 	
NZS (New Zealand)			<ul style="list-style-type: none"> - Guidelines for the selection of internal and external materials for each type must be defined according to the type of building use. - The connection point of the material must be properly considered. 					
Guidelines for Earthquake Resistant Building Construction: Low Strength Masonry (Nepal)		<ul style="list-style-type: none"> - Earthquake prone areas are identified and Building information on the strength of different levels of soil layer is provided to determine the appropriate layout of buildings and structures. 	<ul style="list-style-type: none"> - Symmetrical buildings suffer less damage from earthquake disasters than non-symmetrical buildings. - The ratio of the width to the length of the building must not exceed 1:3 and the height of the building must not exceed 3 times the width of the building. - The height (from the floor to the next floor) of a Low Strength Masonry building must be at least 2 meters high and not more than 3 meters high, and the height (from the floor to the floor) of the building must not exceed 12 times the wall thickness. 				<ul style="list-style-type: none"> - Walls of low-strength masonry structures or buildings must be reinforced as standard and the proportion of the wall height for each type of material is determined differently, as well as the size and location of the openings in the wall. - Floors and roofs should be chosen as light as possible to further reduce the impact of earthquakes on buildings. 	<ul style="list-style-type: none"> - In the case of local materials being used, material selection must take into account the manufacturing process and strength that can withstand earthquake
Standard of the Department of Public Works and Town & Country Planning 54-1301 (Thailand)		<ul style="list-style-type: none"> - Areas prone to earthquake disasters should be designated 	<ul style="list-style-type: none"> - The shape, appearance, and proportions of buildings in earthquake-prone areas should be simple, symmetrical, and regular such as a rectangular building. However, buildings with broken corners or buildings with sudden changes in the size of the structural system should be avoided. - If the size and location of building openings are not appropriate, they may affect the building structure. 				<ul style="list-style-type: none"> - Selection of building materials must take into account the weight that affects the building. - Light buildings are less affected by earthquakes than heavy buildings, and the connection points should be taken into account to ensure proper load transfer. 	

It can be seen that the form and standards of building design for earthquake disasters (non-engineering construction systems) have mentioned various standards. In these criteria, location is taken into account by defining and identifying areas at risk of earthquakes in different location contexts including providing information on the strength of different layers of soil to determine suitable building and structures. Earthquakes are caused by the sudden movement of the Earth's tectonic plates, resulting in the release of energy by the transmission of vibrational waves. Waves and vibrations will cause buildings or structures in the area to be affected by the vibration as well. Therefore, proper location considerations will reduce the risk of buildings against various types of damage, especially buildings near the fault line of the slope area both above the slope and below the slope or near a large tree.

At the same time, the matter of the shape and shape of the building is another requirement specified in the criteria and standards. The form and concept are likely to be in the same direction, that is, the building or structure should be simple, symmetrical, and regular in both the horizontal or structural layout of the building, for example, the layout of the building is U-shaped, T-shaped, cross-shaped and L-shaped. In addition to the building must have a regular horizontal shape, the building must also have a regular vertical shape. Most such buildings or structures are less damaged than those of irregular shapes as a result of the behavior of seismic forces acting on the building itself. When a structure is subjected to an earthquake, the structure sway and acceleration occur at various parts of the structure [9] until it causes a lateral force on the building which causes the building to oscillate and

sway. Buildings whose regular shape both horizontally and vertically can reduce damage to buildings.

In addition, building materials are important. In such criteria and standards must take into account the weight of building materials. Heavy construction materials will result in significant damage to the building. As mentioned above, the force exerted on a building during an earthquake is the lateral force on the building, thereby causing the building to oscillate and sway. Therefore, the fastening and installation of various materials in the building, especially the connection points of building materials, equipment, and furniture, must be strong and standardized to prevent them from falling over and causing damage. According to such criteria and standards, one interesting thing is that there is no specific formulation of floor plans for indoor applications in different locations within the building that have the potential or risk of affecting building occupants differently.

A research study of the injured and fatal victims of the 1988 Armenia earthquake [10] found that the major factors affecting the injury and death of the victims were: in the area of a place inside a building or structure. The location, height, or floor of the occupant's building results in a different ratio of injured or killed, as shown in Figures 2, 3, 4, and 5.

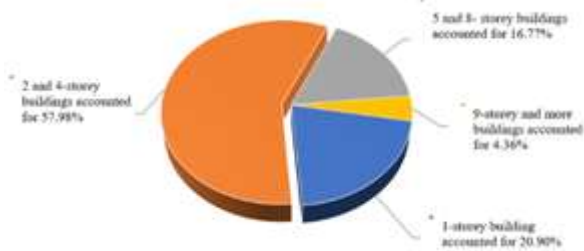


Figure 2 shows the ratio of fatalities in earthquake disasters of different heights in the 1988 Armenia earthquake.

The data in Figure 2 showing the ratio of fatalities in earthquake disasters of different heights in the 1988 Armenia earthquake found that, 1-storey buildings accounted for 20.90% of deaths, 2 and 4-storey buildings accounted for 57.98% of deaths, 5 and 8-storey buildings accounted for 16.77% of deaths, and 9-storey and over buildings accounted for 4.36 percent of deaths.

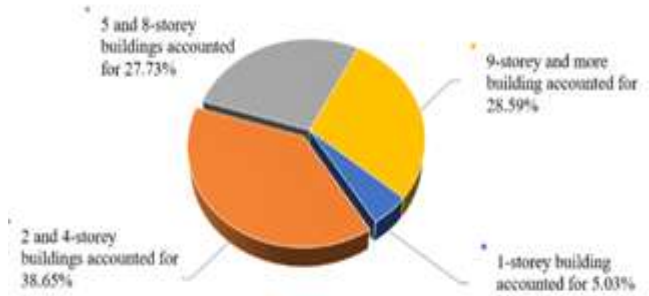


Figure 3 shows the ratio of people injured in earthquake disasters in buildings of different heights in the 1988 Armenia earthquake.

The data in Figure 3 showing the ratio of people injured in earthquake disasters in buildings of different heights in the 1988 Armenia earthquake found that, 1-storey buildings accounted for 5.03% of injuries, 2 and 4-storey buildings accounted for 38.65% of injuries, 5 and 8-storey buildings accounted for 27.73% of injuries, and 9-storey and over buildings accounted for 28.59 percent of injuries.

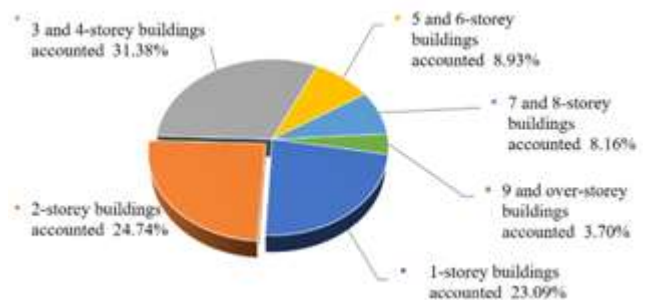


Figure 4 shows the ratio of fatalities in earthquake disasters in the location of buildings on different floors in the 1988 Armenia earthquake.

The data in Figure 4 showing the ratio of fatalities in earthquake disasters in the location of buildings on different floors in the 1988 Armenia earthquake found that, 1-storey buildings accounted for 23.09% of deaths, 2-storey buildings accounted for 24.74% of deaths, 3 and 4-storey buildings accounted for 31.38% of deaths, 5 and 6-storey buildings accounted for 8.93% of deaths, 7 and 8-storey buildings accounted for 8.16 % of deaths, and 9-storey and more buildings accounted for 3.70 percent of deaths.

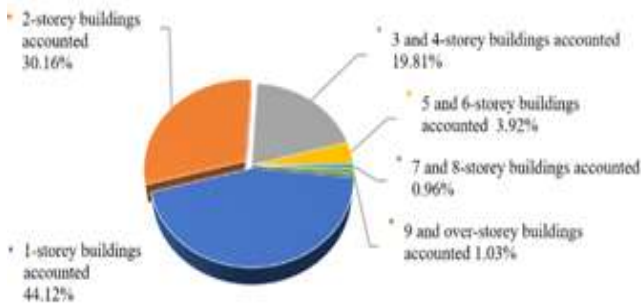


Figure 5 shows the ratio of people injured in earthquake disasters in the location of buildings on different floors in the 1988 Armenia earthquake.

The data in Figure 5 showing the ratio of people injured in earthquake disasters in the location of buildings on different floors in the 1988 Armenia earthquake found that, 1-storey buildings accounted for 43.64% of injures, 2-storey buildings accounted for 29.82% of injures, 3 and 4- storey buildings accounted for 19.59% of injures, 5 and 6- storey buildings accounted for 3.87% of injures, 7 and 8- storey buildings accounted for 0.95 % of injures, and 9-storey and more buildings accounted for 2.12 percent of injures.

Similarly, the information obtained from the research on "Risk Factors for Death and Injuries in Earthquake: Cross-sectional Study from Afyon, Turkey", a study on the deaths and injuries in the 2002 Turkish earthquake [11] found that, in the building on the first floor or ground floor, victims suffered the most injuries and deaths. There were more casualties and injuries in the indoor area than the outdoor area. Within the residence, the resting area had a higher ratio of injured and dead than other areas. At the same time, the ratio of injuries and fatalities was different in rooms or residences, and the area closest to the wall of the building adjacent to the exterior was found to be the most injured and fatal as in Figure 6, 7, 8 and 9.



Figure 6 shows the ratio of the injuries and fatalities in buildings classified by building height in the 2002 Turkish earthquake.

The data in Figure 6 showing the ratio of the number of injuries and fatalities in buildings classified by building height in the 2002 Turkish earthquake, it was found that, 1-storey buildings accounted for 80.65% of injuries and fatalities, and 2 and 3-storey buildings accounted for 19.35 of injuries and fatalities.



Figure 7 shows the ratio of injuries and fatalities between indoor and outdoor during the 2002 Turkey earthquake. The data in Figure 7 showing the ratio of injuries and fatalities inside and outside the building during the 2002 Turkish earthquake, inside building, the number of victims was injured and killed 90.32 percent of the total number of victims and outside building, the number of victims was injured and killed 9.68 percent of the total number of victims.



Figure 8 shows the ratio of injuries and fatalities in different rooms of buildings during the 2002 Turkish earthquake. The data in Figure 8 shows the ratio of injuries and fatalities in different rooms of buildings during the 2002 Turkish earthquake, in the living room area, 64.29% were injured and killed, and 35.71% were injured and killed in the rest of the building.

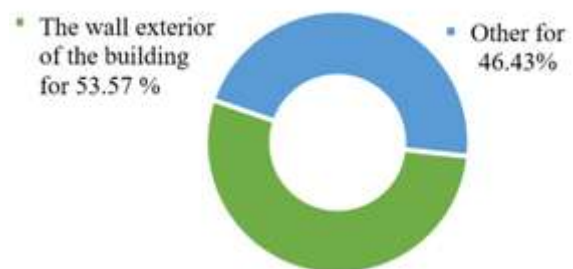


Figure 9 shows the ratio of injuries and fatalities in the location of the interior space in the 2002 Turkish earthquake. The data in Figure 9 showing the ratio of injuries and fatalities in the location of the room space in the 2002 Turkish earthquake, it was found that on the wall of the building adjacent to the exterior of the building, 53.57% of the victims were injured and killed, and 46.43 percent were injured and killed in other areas of the building.

This was consistent with the research data of the 2008 China Sichuan Earthquake Damage Survey [12] found, the walls of residential buildings located adjacent to the exterior (mostly

masonry) were highly damaged, especially around the window and door openings. Research on the 2006 Java Islands earthquake in Indonesia [13] found, the building was damaged in several ways, but the most noticeable was that the walls adjacent to the exterior of the building cracked and collapsed. The research on the impact of earthquakes in the 2011 Great Earthquake in Japan surveyed building damage by categorizing buildings according to their construction materials and their use. Surveys of buildings of the mostly wooden category found that 2-storey houses or buildings suffered the most damage on the second floor of the building. Buildings constructed of such wooden structures found that the roof was damaged, especially the collapse of the structure after an earthquake and the fall of roofing material [14], see Table 2.

Table 2 shows the damage characteristics of buildings in each type of Japanese earthquake in 2011 in Japan.

Building type	Damage			
Buildings with wooden structures (most of the walls are made of wood)	- On the second floor of the building was the most damaged.	- There is a breakdown of the structure and roofing material.		
Buildings with reinforced concrete structures (most of the walls are made of bricks)	- On the first floor of the building, there was damage from the collapse.	- There is a collapse in the middle of the floor and without walls.	- There is erosion of the wall material.	- The wall covering has fallen and damaged.
Steel structure building	- Damage is less than other structures	-Except for non-structural elements		

Table 2 shows the survey of buildings in the RC Buildings category or buildings constructed of concrete structures. It was found that such buildings on the first floor of the building would suffer the most damage such as the collapse of the building structure. Data from a survey from the research "Risk Factors for Death and Injuries in Earthquake: Cross-sectional Study from Afyon, Turkey" on the deaths and injuries in the 2002 Turkish earthquake [11] found, 2-storey buildings had the highest damage ratio. At the same time, buildings made of wood were the most damaged. According to the survey data from the research, it was shown that the location of buildings constructed with different materials or main structures would have different effects on the damage of buildings in different locations. This could lead to different effects on occupants of the building in that location during an earthquake.

V. DISCUSSIONS

Data on the damage caused by the earthquake disaster revealed that the damage and impact on the life and property of the building and its users in different locations had different impacts. It could be summarized as follows: buildings with 2

and 4-storeys would suffer the most damage and cause the most injuries and deaths. The first floor of the building had the highest number of injuries and deaths. Indoor areas such as the living room and the wall adjacent to the outside of the building were most likely to suffer from injuries and fatalities, see Table 3.

Table 3 shows the damage to the life and property of the building and users in different areas.

Location/Area	Characteristics of the most damaged			Earthquake
	Building	Death	Injured	
Buildings with a height of 2 to 4 floors	●			Armenia (1988)
Location area on the 2nd-4th floor of the building		●		Armenia (1988)
Location area on the first floor of the building		●	●	Armenia (1988), Turkey (2002), Japan (2011)
Interior of building		●	●	Armenia (1988), Turkey (2002),
living room		●	●	Turkey (2002)
Wall adjacent to exterior of building		●	●	Turkey (2002), Sichuan Province, China (2008), Indonesia (2006), Japan (2011)

It could be seen that the different damage and impact in each location of the building depends on many factors. As the information found that on the first floor of the building, there were the most fatalities and injuries. This was most likely the result of the crushing and erosion of the next layer. Consistent with the data found that 2 and 4-storey buildings were the most damaged due to the collapse of the building on the ground floor. At the same time, there were more deaths and injuries in the indoor areas than in the outdoor areas, which were associated with fleeing and evacuation. This was in line with the Earthquake-resistant Building Design for Architects guidebook [4] that emphasizes evacuation from the building without obstacles and safety. At the same time, if the building did not facilitate evacuation from the building due to obstructions in the escape route area, there was a greater chance that those inside the building would be affected than those outside the building or in various activity areas such as resting area, bedroom, living room, kitchen. The data showed that in the position of the living room, the most casualties and deaths occurred. Such characteristics were consistent with the use of the activities of the area. The living room was considered to be a shared activity area and has the highest frequency of use of the residence, resulting in earthquakes causing more injuries and deaths in the area. The wall adjacent to the exterior of the building saw the highest number of injuries and deaths in that location. This was partly since most of the walls were constructed of masonry or heavy walls, unlike interior walls that are built with lightweight and low-weight walls. If there was earthquake erosion, the exterior wall would collapse on the occupants of the building and the heavy wall load may result in greater exposure than

the interior wall. Consistent with one of the recommendations of building design standards for earthquake disasters (non-engineering construction system) [3] [7], it was important to consider the use of masonry wall materials in terms of inter-material collision and reinforcement. This was because the walls were fragile in earthquakes and had the potential to break and fall on the occupants of the building, where such walls were mostly exterior walls.

VI. CONCLUSION

It could be seen that different areas in buildings or locations in residential buildings were affected and damaged by earthquake disasters in different ways. Such characteristics were related to the layout and space designation of the residential buildings, thus leading to the perception and determination of the safety points of the occupants in the building. The criteria and recommendations of building design standards for seismic disasters (non-engineering construction systems) did not define a specific pattern for indoor use in locations that are likely or prone to impact on users. In terms of design and preparation, the focus should be on the areas where users were most likely to be affected such as the living room, where data showed the highest number of injuries and deaths. In such areas, consideration may be given to the use of safe materials and installations, as well as the design and layout of such areas for easy and safe evacuation and removal from the building. At the same time, in the design of residential buildings for people with specific or limited self-help during earthquakes such as the disabled, children, or the elderly, people in this group may need to be considered in terms of how often they use it in everyday life, such as the bedroom or living room. Such rooms may be planned to be able to leave the building easily and safely in the event of an earthquake. According to earthquake damage data, different locations and patterns of buildings were damaged in different ways. If more damage statistics are collected in different locations of the building, it would help to ensure the safe design and layout of building activities with minimal risk of impact.

Therefore, information about the damage and impact of buildings and structures made it possible to know the layout of safe areas within the building. It could be used as supporting information for the determination of criteria and standards for the design of buildings and structures for a comprehensive range of earthquake disasters including proper management of the building's layout is another factor that contributes to reducing the impact on residents that can lead to injury or death during an earthquake.

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Factors Influencing Product Purchase Decision, Franchise Business "ThiewKluay Tod" Phra Nakhon Si Ayutthaya Province

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Abstract— Nowadays, the number of franchise businesses is increasing but most entrepreneurs are not as successful as they intended. The right marketing mix and brand image strategy directly influences consumers' purchasing decisions. The purpose of this research was to study the marketing mix and brand image, purchase decision level and factors influencing the purchase decision of the "ThiewKluay Tod" franchise business of Ayutthaya province. The tool used for collecting data was a questionnaire. The sample consisted of 385 customers using W.G. Cochran formula and accidental sampling method. The statistics used to analyze the data were mean, standard deviation, and multiple regression analysis.

Research showed that the overall marketing mix was at the highest level. When considering each aspect, the highest level of product opinions was found, the overall brand image was high, and the overall purchasing decision level was at the highest level. It was found that the marketing mix influenced the purchase decision of the "ThiewKluay Tod" franchise business, where independent variables could be predicted by 51 percent of the dependent variables. Brand image influences purchasing decision of "ThiewKluay Tod" franchise business, where independent variables could be predicted by 36 percent of the dependent variables. The results of this research are used to formulate marketing mix strategies and brand image strategies that meet the needs of consumers and new franchisees, which affect purchasing decisions and purchasing a franchise business

Keywords— Purchase decision, Franchise business, Marketing mix, Brand image

I. INTRODUCTION

The market value of the franchise business continues to grow, especially the food and beverage business is considered a very popular franchise as it is one of the 4 factors that are essential to life [1]. In a volatile economy, the demand for self-employed or small business owners is increasing, especially for the younger generation or the unemployed. Franchise business is another interesting option because investing in a franchise business requires no time in building a new business. Not only foreign franchise businesses have grown exponentially in Thailand, but also Thai franchise businesses have become increasingly competitive over the years such as Amazon, Inthanin, DoiChaang, PunThai Coffee, Chob Cha and 5 Star Chicken[2]. Franchise business is the

business of giving franchisees the right to operate under a trademark and transfer knowledge of various work processes. Franchise businesses are as diverse as service franchises or production franchises. Franchise business will be successful or not depends on the strategy of management in many aspects including management and marketing factors to ensure the quality and standardization of the franchise business [3]. Although the number of franchise businesses in Thailand has increased, the rate of entry and exit from the system continues to change. This is because some entrepreneurs just saw the success of other people's franchise business and imitated it but did not succeed as hoped and eventually they had to leave this business system. Each franchise business has details or conditions for buying and selling franchises, both the same and different, such as rules, fees, royalties, management of

brand image building, and compliance with the terms of the contract [4].

Therefore, one of the important factors in doing a franchise business is the marketing mix, especially the meticulousness in production and sales at reasonable prices with a variety of distribution channels and good marketing promotions. Brand or brand image is also considered essential and important to brand recognition of consumers and enabling them to make quick purchasing decisions [5]. Brand image affects consumer perception, which arises from linking brand-related things to the consumer's overall memory through the five senses. : sight, hearing, touch, smell and taste [6], especially food products, which are the most popular types of products used in franchise business.

In Phra Nakhon Si Ayutthaya Province, a large number of bananas are grown. Almost every household has a banana tree planted in their homes, resulting in a crop that exceeds the needs of local residents. Besides rice staple food, bananas can also be developed into snacks, appetizers or snacks. Consequently, consumers pay more attention to the yield of processed bananas as compared to the staple food [7]. Deep-fried sliced banana is probably a dish from Indian culinary culture that uses deep-fried as well as fried beans. This is different from the Thai cooking culture where the produce is mainly cooked by boiling, grilling and grilling methods such as ordained bananas, toasted bananas and banana desserts. Deep-fried sliced banana is a Thai dessert which is cooked by cutting a banana into slices or halves and then coated in a batter that consists of rice flour, grated coconut, sesame (popularly roasted), sugar and coconut milk. Subsequently, it is fried in a pan. Thai people like to eat deep-fried sliced banana as a snack [8]. ThiewKluay Tod's beginnings originated from a time when the business owner had the opportunity to eat deep-fried sliced bananas his sister-in-law bought from SamutPrakan Province. It is a powder that has a unique aroma and distinctive smell and softness of the powder. So he wanted to open a deep-fried sliced banana shop in Ayutthaya to support his main occupation in case of having to leave his job. He started by mixing the flour himself by considering it to be close to the flour bought from SamutPrakan Province and sold at home as a family business. Then he was interested in expanding the business but lacked the knowledge in this area. He therefore contacted for academic services about starting a business with relevant government agencies and educational institutions in order to gain potential in small business management. He came up with the idea to increase distribution channels by selling in the form of food trucks so that they can relocate their sales locations at any time without having to find a new store location. He could also accept off-site work in the case

of contracting or almshouse in different areas more conveniently. Most importantly, he learned about building a brand and branding it to be memorable. Later plans were made to open a franchise business.



Figure 1. Food truck for selling products "ThiewKluay Tod"

Researcher as an academic at the institute consulting with the entrepreneur saw this entrepreneur's commitment to franchising, but he still lacks the knowledge of starting a business. He is also unaware of the factors that drive customers and buyers of ThiewKluay Tod's franchise business. The researcher therefore studied the factors influencing the decision to purchase the franchise business of "ThiewKluay Tod" in Phra Nakhon Si Ayutthaya Province. This study focuses on marketing mix and brand image in order to apply research findings to formulate marketing mix strategies, and the strategy of brand image of the franchise business that meets the needs of consumers and those interested in franchise business. Finally, there would be a decision to buy a product and a franchise business with ThiewKluay Tod.

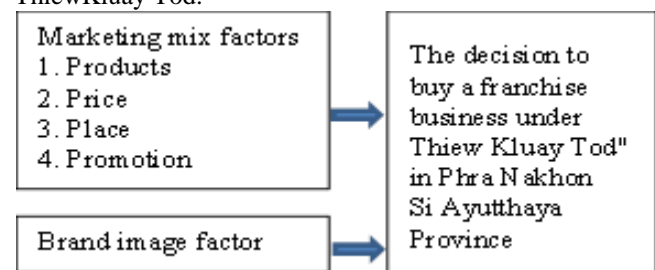


Figure 2. Conceptual framework

II. RESEARCH OBJECTIVES

- 1) To study the marketing mix factors and brand image factors of the franchise business under "ThiewKluay Tod" in Phra Nakhon Si Ayutthaya Province.
- 2) To study the decision to purchase a franchise business under "ThiewKluay Tod" in Phra Nakhon Si Ayutthaya Province.

3) To study the factors influencing the decision to purchase a franchise business under “ThiewKluay Tod” in Phra Nakhon Si Ayutthaya Province.

III. LITERATURE REVIEW

Concepts and theories of 4P's marketing mix

According to [9], the marketing mix is defined as a marketing tool used in strategic planning to achieve business objectives. It is a tool to meet consumer satisfaction and needs by using 4Ps marketing strategies that are aligned with the planning principles in each segment to best match our selected target audience. The marketing mix of food business 4P consists of

- 1) Product is “to offer anything to satisfy the needs of the customer in order to obtain satisfaction that includes a tangible product or service such as needs, cleanliness, freshness and convenience with taste according to customer satisfaction.
- 2) Price is the rate at which a product is exchanged in a market using currency as a medium. At present, price is an important factor in marketing management. The element of determining a price strategy to achieve a satisfactory level of a product is suited to the level of competence or purchasing power of the consumer in the market. Pricing must take into account production costs and costs based on a method known as "Markup Pricing" rather than other environmental factors.
- 3) Place is to create convenience in purchasing and delivering products to customers. If the sale of goods requires multiple operations, the method of distribution or distribution is very important. The principle of selecting and distributing products is not only a large number of sales, but the location must be able to support sales. However, it depends on what the product is and who the target audience is, for example, high-end items should be limited to not selling too many because it will spoil the image. Another distribution factor is the cost of distribution, which means that the ability to distribute evenly has to be compared with higher costs. For a storefront business, place is the location where the location should be chosen to suit the product.
- 4) Promotion is the creation of various activities to tell customers about the nature of the product, for example, advertising in the media or choosing activities that drive consumers to buy more, such as discounting for small business strategies. Advertising can be overkill because it requires investment. The free advertising channel or relatively low investment is internet media and nowadays internet media has a large number of users so it can be accessed easily and quickly. However, there are also low investment materials such as flyers and posters and local media such as parades, local radio and local newspapers. Media selection, in addition to cost considerations, should also be considered in terms of reaching the target audience, for example,

adult-oriented advertising should choose internet media because it is free and choose websites that are popular for adults to use.

In terms of brand image [10], it is defined as brand image refers to what customers think of as well as their thoughts on the brand, which arise from their beliefs and perspectives on the brand as a result of identity, values and personality. For the mix of branding from a customer perspective, there are four parts: 1) Perceptual occurs through observations, news, various types of activities or individuals. 2) Cognitive comes from knowing all information and interpreting it. 3) Affective is a feeling that describes what a brand expresses to consumers. 4) Conative or action arises from knowledge, emotions and feelings.



Figure 3. Brand image building mix [10]

In addition, brand image is a connection of strength, fondness and uniqueness in the memory of consumers and can be created in many ways such as direct consumer experience, information communicated by other relevant agencies, word of mouth, and self-brand. The brand image will be perfect with the following components: 1) Strength of Brand Associations is associated with brands based on market factors and other factors affecting the consumer experience with the brand. The strength of a brand image arises from the number or quantity and quality of the information acquisition process and consumer beliefs about the brand's features and benefits. 2) Favorability of Brand Associations arises from brand features and benefits, for example, the brand indicates highly convenient, reliable and efficient. 3) Uniqueness of Brand Associations means a product's association with a brand or is based on its features or benefits such as user characteristics or usage. The strength and fondness associated with a brand means creating a unique identity that sets it apart from other brands [11].



Figure 4.Elements of the brand image [11]

The purchase decision process can be divided into 5 steps as follows: 1) Problem of Need Recognition- It is the initial sense of differentiating between the ideal and the reality state of the person, which affects the desire to fill the parts between the ideal and reality state. Each individual's problems have different causes. 2) Search for Information- When a problem arises, consumers need to seek a solution by seeking additional information to help them make a decision such as personal search, commercial search, public search, and experimental search. 3) Evaluation of Alternative of Alternative- It is a method used by consumers to evaluate alternatives by comparing properties or product information from a variety of brands to a single brand. This depends on your beliefs, values and past experiences along with your faith in the brand. 4) Decision Making- Most consumers need time to make a decision. The product information is different, but in some products, consumers may not need time or information to make a decision at all. 5) Post purchase Behavior- It is the behavior that consumers get from their experience of consumption. If consumers are satisfied, they know the advantages of the product and lead to repeat purchases or referrals to new customers. If the consumer is dissatisfied, they will not buy the same product again next time, and this may result in bad word-of-mouth causing the customer to buy less as well. [12] [13] [14] [15]



Figure 5.Normal purchase decision processes [14]

IV. RESEARCH METHODS

The population used in the research was consumers in Phra Nakhon Si Ayutthaya Province. The researcher determined the

sample size from a statistical confidence level of 0.05. Cochran's formula [16] yielded a sample size of 400 people. A simple random sampling method was used in the study. The independent variables in the research were the 4P marketing mix factor and the brand image factor. The dependent variable was the decision to purchase the franchise business under “ThiewKluay Tod”. The tool used for collecting data was questionnaires. Item-Objective Congruence Index (IOC) was used to find quality with IOC value less than 0.75. Then the Pilot method A 30-set survey was used to determine the confidence of the questionnaire. Cronbach's Alpha Coefficient [17] test had a questionnaire confidence value of 0.914, and then data was collected with the sample.

The researcher studied data on marketing mix factors, brand image factors, and purchasing decisions of franchise businesses under “ThiewKluay Tod”. The data were analyzed for descriptive statistical values with mean and standard deviation. A hypothesis test was performed using reference statistics to analyze the correlation of the data associated with the variables studied, ie, the correlation between one variable and multiple variables. Here there was one dependent variable and two independent variables, so the Multiple Regression Analysis was used to find the values.

V. RESEARCH RESULTS

The results of a study on marketing mix factors, brand image factors and purchasing decisions of the “ThiewKluay Tod” franchise business in Ayutthaya province as shown in Table 1-3.

Table 1 Mean and Standard Deviation in terms of marketing mix factor opinions

4P Marketing mix factors	\bar{X}	S.D.	Level of Opinion
1. Products	4.31	0.71	Highest
2. Price	4.19	0.78	High
3. Place	4.24	0.79	Highest
4. Promotion	4.08	0.86	High
Total	4.21	0.79	Highest

According to Table1, the opinion level of the overall marketing mix was the highest and the mean was 4.21. When considering each aspect, the product were at the highest level with an average of 4.31, followed by the distribution channel with the highest level and an average of 4.24, the price was high with an average of 4.19, the promotion was high with an average of 4.08, respectively.

Table 2 Mean and standard deviation in terms of brand image opinions

Brand image factor	\bar{X}	S.D.	Level of Opinion
Total	4.18	0.83	High

Table 2, the overall brand image was high with an average of 4.18.

Table 3 Mean and standard deviation in terms of opinions about purchasing decisions

Purchase decisions	\bar{X}	S.D.	Level of Opinion
Total	4.30	0.72	Highest

Table 3, the overall purchasing decisions was the highest with an average of 4.30.

The results of a study on factors influencing the decision to purchase a franchise business under “ThiewKluay Todd” in Phra Nakhon Si Ayutthaya Province as shown in Table 4 – 5

Table 4 Normal multiple regression correlation coefficient in terms of marketing mix factors influencing purchasing decisions.

4P mix factors	Marketing β	S.E.	t	P
Constant (a)		0.350	3.114	.002
1. Products	0.200	0.076	2.514	.014
2. Price	0.277	0.065	3.336	.001
3. Place	0.297	0.062	3.396	.001
4. Promotion	0.207	0.061	2.377	.019
R=.725	Adjusted R ² = .506	SE.est.= 0.30		

* p < 0.05

Table 4, Marketing mix factors influenced purchasing decisions of franchise business under “Three Banana Trees” in Phra Nakhon Si Ayutthaya Province, and independent variables could be used to predict dependent variables by 51 percent. Adjusted R² value is 0.506. When considering each aspect, it was found that the product was $\beta = 0.20$; $p < 0.05$, the price was $\beta = 0.27$; $p < 0.05$, the distribution channel $\beta = 0.29$; $p < 0.05$, and the promotion $\beta = 0.20$; $p < 0.05$, indicating that the marketing mix factor had a statistically significant influence on the franchise business decision under “ThiewKluay Tod” in Phra Nakhon Si Ayutthaya Province at a level of 0.05, thus the hypothesis could be accepted.

Table 5 Normal multiple regression correlation coefficient in terms of marketing mix factors influencing purchasing decisions.

Brand image factor	β	S.E.	t	P
Constant (a)		0.29	7.296	.00
		0		0
Integration of brand image factors	0.552	0.06	7.571	.00
		9		0
R=.608	Adjusted R ² = .363	SE.est.= 0.33		

* p < 0.05

Table 5, brand image factors influenced purchasing decisions of franchise business under “ThiewKluay Tod” in Phra Nakhon Si Ayutthaya Province and independent variables could be used to predict dependent variables by 36.30 percent. Adjusted R² was 0.363. When considering each aspect, it was found that the brand image factor had a β value of 0.522, indicating that the brand image factor had a statistically significant influence on consumers' purchasing decisions at the 0.05 level, thus the hypothesis could be accepted.

VI. DISCUSSION

1) The results of the study on marketing mix factors showed that overall was at the highest level. When considering each aspect, the product was found to be at the highest level, followed by the distribution channel at the highest level, the price at the high level, and the promotion at the highest level respectively. It could be seen that consumers pay the most attention to the product because ThiewKluay Tod was a food product that must be clean, fresh, new, convenient packaging and good taste. This was consistent with [14][18] found that the product variant was at the highest level, followed by the distribution channel at the highest level, because the franchise business was an alternative channel for consumers to have more access to the product. “ThiewKluay Tod” used food trucks, making it easy to move sales locations and was considered a distribution channel that can reach a wide range of consumers. Similarly, the study of motivation and marketing mix affecting the purchase of food trucks in Bangkok [19], the marketing mix was more correlated with food truck purchasing decisions.

2) The results of the study on overall brand image factors were high. This was because brand image was what customers think and arises from the beliefs and perspectives gained from creating identity, value, connection, liking and uniqueness in the memory of consumers. This was in line with [5] a study of brand values that affect purchasing decisions. It was also

found that consistent with [10] [11] studied the concept of brand image building mix from the customer perspective and brand image elements.

3) The results of the study on overall purchasing decisions were at the highest level, indicating that consumers were able to easily make a purchase decision on ThiewKluay Tod's products because it was a snack product that does not require much information or time to make a decision. Unlike some products, consumers may need more time and information before making a purchase. This was consistent with [14] of the decision-making process in Step 4: Decision Making.

4) The hypothesis testing revealed that marketing mix factor and brand image factor had a statistically significant influence on purchasing decision of franchise business under "ThiewKluay Tod" in Phra Nakhon Si Ayutthaya Province at 0.05 level. This implied that proper marketing mix and building a unique brand image of ThiewKluay Tod contributed to the consumer's purchasing decision process. This corresponded to [3] [5] [7] [12] [13] [14] [15] [18], the marketing mix factor and the brand image factor were statistically related and influenced. to the decision of consumers to buy goods and buy a franchise business.

VII. CONCLUSION

The results of this research can be applied to small business entrepreneurs under the brand "ThiewKluay Tod" in order to determine the strategy of the marketing mix and the appropriate brand image building strategy. The marketing mix strategy should be focused primarily on products, with emphasis on standardized raw materials and flavors, and distribution channels that can reach all consumer groups. As for defining a brand image strategy, it should emphasize uniqueness to be embedded in the memory of consumers. Identity, value and connecting preferences that meet consumer needs should be considered together. It can be seen that the strategy of the marketing mix and the brand image building strategy can be used as a guideline in the franchise business for new entrepreneurs. Business success depends on a number of management strategies, including managing marketing factors and building a memorable brand image. Building a franchise business must have the same quality and standards. In case the franchisee's unpreparedness might make the business unsuccessful because those who will do business in franchise must understand the franchise system and understand the management of the franchise network. Moreover, there are many competitors in the same franchise business, so the competition is quite high and there may be problems with copying.

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Creative Tourism Development Program in Ban Ngew Sub-district, Sam Khok District, Pathum Thani Province

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Abstract— Action research collaborated with community participation to develop tourism programs at Ban Ngew Sub-district, Sam Khok District, Pathum Thani Province. The process consists of 1) study of background information, context, survey and analysis of community data, 2) pre-assessment of tourism development, 3) plan for tourism development with the locals, 4) sustainable community-based tourism training and tourism interpreter development, 5) tourism program development 6) tourism experiment and conclusion and 7) evaluation after tourism development. The evaluation results before the Ban Ngew District tourism development were at the level of to be improved. After the tourism program was developed, making a change to the community, receiving an excellent assessment of the conservation and promotion of cultural heritage, and a good level in economic management, society, and well-being, systematic and sustainable management in natural resources and the environment, tourism management by the community, and the quality of community-based tourism services. The results of changes show the benefits of tourism program development to create a knowledge base for tourism management in the community, enterprises, income distribution, and community product certification. Therefore, strengthening the community and appealed to travel agencies that lead to sell tourism programs then generate additional income to the community

Keywords— Tourism Program, Creative Tourism, Community-based Tourism

I. INTRODUCTION

Thailand's tourism situation in 2019 found that Thai tourists traveled domestically 166 million times and last year, the number decreased by 0.06%. Although tourism of the major city and the second city was close to the original, second city tourism grew by 0.88%, while major cities declined by 0.49 percent [1]. At present, Thailand has a variety of tourism models that focus on sustainability by integrating culture, tradition, wisdom, and Thainess to create a unique experience for tourists to experience the locality. This style of tourism promotes travel across all regions of Thailand [2] until it transforms into tourism on a balance of constraints and creative imagination and collective thinking while maintaining a local identity.

The Tourism Authority of Thailand drives policies to support tourism in the second city under the "Amazing Thailand Go Local" campaign, which is a tool to enhance local strength and create income distribution to the second city in 55 provinces in 5 regions of Thailand. This is to make tourism in the second city the most beneficial tourism for tourists and owners of tourism resources [3]. Creative tourism is an

alternative that allows second city tourism to be a journey that leads to experiences that can be connected by participatory learning on the province's cultural heritage or identity. The concept is aimed at the market for specific tourists who want to experience firsthand and interact with the people of the place and learn about their culture and well-being. Tourists feel that they are part of the locality [4].

The concept of creative tourism has evolved from cultural tourism in response to the changing behavior and needs of tourists. In the past, cultural tourists were the only recipients and could only see the local way of life or culture through their eyes or visit and buy souvenirs. Instead, creative tourism engages tourists in creating a tourism experience through targeting active tourism activities based on individual interests to absorb local identities [5]. Therefore, it is a good opportunity to present a tourism model that can draw the uniqueness, culture, and lifestyle of the community to tourists. Community-based tourism in the context of diverse areas and resources is a tool for managing tourism to conserve culture and the environment. This concept focuses on tourism in tourist attractions related to nature and unique local culture. Therefore, community-based tourism is based on a concept that highlights the importance of truly integrating the aim of

environmental restoration and conservation [6]. However, tourism management needs to be aware of the carrying capacity of tourists. This tourism management is called Community Based Tourism (CBT), which is a form of tourism recognized internationally as a tool to develop people and communities in terms of promoting quality of life and sustainable community economic development, including as a tool for cultural revitalization, inheritance, dissemination, and exchange of knowledge between the owner of the attraction or people in the community and visitors. It also creates awareness and engagement through interactions between tourists, community members and natural resources, traditions, and community way of life [7].

The geospatial highlight of Ban Ngew Sub-district is the Thai-Mon community way of life with local knowledge and wisdom in Mon-style embroidery and other products derived from the traditional wisdom of the ancestors. This indicates the availability of a spatial context that should encourage succession for generations to come. These proud stories are told to tourists to get to know and understand their local way of life and culture so that locals and tourists can participate in the learning process with each other. The concept of community-based tourism management emphasizes tourism management in terms of responsible management so that everyone can work together to reduce environmental and social impacts. This led to the development of creative tourism programs in Ban Ngew Sub-District Community, Sam Khok District, Pathum Thani Province. There is a link to the project development process by using cooperation from network partners from universities, government agencies, and private agencies to drive community strength and self-reliance through community resource capital. They can reflect the identity of the Thai-Mon lifestyle community through the process of developing tourism programs and creating a learning understanding between the community and those outside the community.

II. RESEARCH OBJECTIVES

1. To study the contextual conditions of creative tourism management in Ban Ngew Sub-district, Sam Khok District, Pathum Thani Province.
2. To develop a community-based creative tourism program.

III. RESEARCH METHOD

A. Population and sample

The population in this study was conducted using qualitative and participatory action research methods. There was a total of 28 focus group participants, which consisted of Ban Ngew Sub-district Municipality Administrators, people in the community, village headmen, community leaders, and experts. The purposive selection method was used

B. Research tools

The research instruments were in-depth interviews and the Thailand Community-Based Tourism Development Assessment to link the issues and objectives accordingly.

C. Data collection

The research was collected in the following steps:

1. Data collection for the preparation of tourist attractions in Ban Ngew Sub-district as follows:

- 1.1 Study the contextual conditions in Ban Ngew Sub-district and basic information of the community along with surveying the area and analyzing the community data from taking photos of important landmarks and using the collected data to organize it properly.

- 1.2 Organize forums, brainstorm ideas, discuss and plan tourism operations with communities and stakeholders such as temples and schools in the community to develop them as tourist attractions and houses of the people to develop as a base for further learning activities.

- 1.3 Evaluate both before and after the development of creative tourism programs by inviting qualified representatives of Sri-Ayutthaya Rajabhat University Group to join the field for evaluation using the Thai Community Based Tourism Development Assessment.

2. Develop a creative tourism program using a participatory process with the process of meetings to make people in the community aware of community conditions. Ban Ngew sub-district was collected and analyzed as follows:

- 2.1 The researcher participates in surveys of places and routes with the community. A spatial survey of tourism resources and a creative learning base were undertaken to visualize the reality while taking photographs.

- 2.2 A meeting was organized by the cooperation of the local canal protection organization executives, people in the community, village headmen, and community leaders. The conclusions were then analyzed to develop a creative tourism program to verify and validate.

3. There was an experimental tour and a summary of the results from 27 tourists.

D. Data analysis

The content analysis was used to develop a community-based creative tourism program in Ban Ngew Sub-district according to the principles of the tourism program.

IV. RESULTS

In the study of the contextual conditions of creative tourism management in Ban Ngew Sub-district, Sam Khok District, Pathum Thani Province, it was found that Basic information in a community-oriented context to develop tourism was in the form of community surveys. Important historical sites were discovered in Ban Ngew Sub-district as follows: 1. Wat Song Phi Nong is the largest Raman temple in Ban Ngew

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Sub-district. Tourists were coming to pay homage to Luang Phor Phet and Luang Phor Ploy. 2. The church of the abandoned temple in Song Phi Nong Temple: Thai people often call it “Wat Mai” because it is currently supported by the Office of Fine Arts 2, Suphan Buri Province. 3. Luang Pho Wat Nang Yat (original name): it is a temple with an old ordination hall located alongside the Victory Column of King Taksin the Great, which is within the compound of Wat Pa Ngew School and it is considered an important historical place to commemorate the grace of King Taksin the Great for the nation. 4. Pathum Thani City Observatory is located in Sam Khok School. This tower can see the Chao Phraya River view around the area of Sam Khok District. 5. Wat Pa Ngew is an important tourist attraction with outstanding Ayutthaya-era architecture. 6. Wat Suanmamuang is more than 200 years old: the temple is located in Suanmamuang Nue Village and was established as a place of meditation. 7. Wat Ampukaram is the main temple of the district: inside is the enshrinement of Ekathotsarot and there is a statue of Phra Phutthajarn To Phromrangsi and the reign of King Rama IX who used to come here. 8. Wat Phai Lom: in the temple, there is an Asian Openbill which is protected wildlife which eventually became a tourist attraction.

Development of community-based creative tourism programs in Ban Ngew Sub-district, Sam Khok District, Pathum Thani Province, researchers participated in surveys of places and routes with the community as well as exploring the sites in tourism resources and establishing the base of creative learning to see the real and photographed conditions. There is also a forum organized by the cooperation of the people in the community to develop a creative tourism program. The identity of the community is used to increase the Mon-style embroidery learning activities for tourists to try. The tour program has interesting details as follows.

One Day Trip : Wat Song Phi Nong Abandoned – Wat Song Phi Nong – Sabai Mon learning base – Pillars of Victory – City Observatory of Pathum Thani – Wat Pa Ngew – Wat Suan Mamuang – Wat Ampukaram – Wat Phai Lom

08:00 a.m. Meet at the meeting point, then travel to visit important ancient sites such as the abandoned temple church located in the area of Wat Song Phi Nong (Mon people call it “Phi Kwan Deng” or “Phi Ka Moi”, Thai people call it “Wat Mai”). It is characterized by an abandoned church with a roof. The Fine Arts Office 2 of Suphan Buri has renovated an abandoned church in March 2018. Then travel to Wat Song Phi Nong, which is located on the banks of the Chao Phraya River. In this temple, there are 3 Mon pagodas in Yangon style. Wat Song Phi Nong was built in 1867. Travel to pay homage to 2 sacred Buddha images, which is Luang Pho Phet,

a stone Buddha image in the subduing Mara posture, art in the U-Thong period that is about 671 years old and Luang Pho Ploy is a stone Buddha image in U-Thong art style.

09:00 a.m. Cycle in Ban Ngew community and check-in at the Victory Pillar, a wooden pole placed in front of the Monk of Wat Nang Yat. It is assumed that it may be a wooden pole that has been placed as a monument to the victory after King Taksin the Great won and successfully recovered independence from the 2nd loss of Ayudhya. Then ride a bike to Pathum Thani Observatory, which is located in the area of Sam Khok School. It is a learning center on the geography and history of Pathum Thani Province and can see the scenery of Pathum Thani Province in 360 degrees.

10.30 a.m. Break for snacks and welcome drinks

11:00 a.m. Visit Wat Pa Ngew, an ancient temple in the Ayutthaya period. There is a Thai temple built of stone and decorated with stucco and glazed tiles, along with the sacred Buddha image of Wat Pa Ngew.

12:00 a.m. Have lunch together in local Mon style.

13:00 p.m. Enter the lucky Mon cloth activity at Aunt Suda Saijai’s house, which is the base for learning about Sop Mai Mon embroidery. Let’s work together to design and try to draw and draw traditional Sabai Mon fabric patterns on cloth bags/fabric masks (souvenirs). and learn to make embroidery patterns from the process of drawing, patterning, and embroidering. At the end, take a photo with a Sabai mon cloth.

14.30 p.m. Visit Wat Suan Mamuang, a temple that teaches Vipassana meditation. Wat Suan Mamuang was bestowed wisongkhaammaseema on May 20, 1872. Wat Suan Mamuang was founded and named after the topography that has existed since the beginning, that is, there are many mango orchards. When completed, it was dubbed Wat Suan Mamuang.

15.30 p.m. Visit Wat Amphawaram, the old temple that is over 200 years old was built during the reign of Somdej Phra Buddha Yodfa Chulalok (Rama I) of Rattanakosin around 1457-1757 by the Romans who came to help fight during the “9 Army War” era. When they won that battle, King Rama I had the Ramans build this temple along with many other temples in both Nonthaburi and Pathum Thani provinces. Then visit Wat Phai Lom, an ancient temple built during the Sukhothai period. The temple is located on the east bank of the Chao Phraya River. The temple grounds are home to the Asian Openbill and are therefore of interest to tourists.

16.30 p.m. When the fun is complete, everyone will return safely.

In addition, the results of the evaluation before and after the development of creative tourism programs by experts found that (as in Table 1)

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Table 1: Evaluation scores before and after the creative tourism program development using the assessment form of community-based tourism development

Aspect	Pre-assessment		Post-assessment	
	Full score of 4 (points)	score level	Full score of 4 (points)	score level
1. Community-based tourism management	0.00	need to be improved	2.80	Good
2. Economic, social and good quality of life management	0.50	need to be improved	2.87	Good
3. Conservation and promotion of cultural heritage	0.33	need to be improved	3.33	Excellent
4. Systematic and sustainable management of natural resources and the environment	0.33	need to be improved	2.86	Good
5. Service and Safety	0.63	need to be improved	2.77	Good

The results of the assessment of the development of community-based tourism in Thailand in five perspectives before the development of the creative tourism program found that the results of community assessment in Ban Ngew Sub-district should be improved in all aspects, including service and safety (0.63 points), economic, social and good quality of life management (0.50 points), conservation and promotion of cultural heritage (0.33 points), systematic and sustainable management of natural resources and the environment (0.33 points) and community-based tourism management (0.00 points) respectively. When experts were asked to participate in the assessment of the development of creative tourism programs again, it was found that the scores were excellent: Conservation and Promotion of Cultural Heritage (3.33 points) and the scores were good: economic, social, and quality of life management (2.878 points), systematic and sustainable management of natural resources and the environment (2.86 points), community-based tourism management (2.80 points) and service and safety (2.77 points) respectively. The results of the tourism experiment and the summary of results from 27 tourists based on questions from the tourism component theory (5A) were shown in the following table.

Table 2: shows the mean and standard deviation of the tourism component sum (5A)

Composition	n = 27		Level of Opinion	Level
	X	S.D.		
Attraction	3.53	0.84	High	3
Accessibility	3.67	0.83	High	2
Amenity	3.50	0.66	High	4
Accommodation	3.29	0.78	Moderate	5
Activity	3.87	0.71	High	1
Average total	3.57	0.76	High	

Table 2, the tourism practice results of 27 tourists found that there was also a high level of opinion on the sum of tourism components for the development of community-based creative tourism programs, the mean was 3.57 and the standard deviation was 0.76. When considering each aspect, the activity also showed a high level of opinion: the total mean was 3.87 and the standard deviation was 0.71, followed by ease of access with a total mean of 3.67 and a standard

deviation of 0.83, attractiveness had a total mean of 3.53 and a standard deviation of 0.84, the amenity had a total mean of 3.50 and a standard deviation of 0.66 and the accommodation had a total mean of 3.29 and a standard deviation of 0.78.

Table 3: shows the mean and standard deviation of opinion levels in terms of community practice

Factors	n = 27			Level
	X	S.D.	Level of opinion	
1. Friendliness of the people in the community	4.14	0.65	High	2
2. Generosity	4.10	0.64	High	3
3. Kindness of people in the community	4.12	0.62	High	4
4. Conservation and development of tourist attractions	3.97	0.64	High	10
5. Promotion and conservation of local traditions	4.19	0.67	High	1
6. Not destroying tourist attractions	4.06	0.65	High	8
7. Honesty to tourists	4.08	0.65	High	7
8. Non-interference with tourists to sell goods	4.09	0.70	High	6
9. Maintaining cleanliness of tourist attractions	4.13	0.65	High	3
10. Taking care of the interests of tourists	4.04	0.65	High	9
Average total	4.09	0.65	High	

Table 3, the results of tourism programs from the number of 27 tourists showed that there was a high level of opinion about tourism in the community as a whole. The overall average was 4.09. The results are listed in order from greatest to least as follows: promotion and conservation of local traditions were averaged 4.19, followed by the friendliness of the people in the community with an average of 4.14, The average cleanliness of tourist attractions was 4.13, the generosity of the people in the community was 4.12, Generosity was an average of 4.10, the average of non-interference with tourists to sell goods was 4.09, the average of loyalty to tourists was 4.08, The mean of non-destruction of tourist attractions was 4.06, the mean of tourists' benefit was 4.04, and the mean of conservation and development of tourist attractions was 3.97, respectively.

V. SUMMARY AND DISCUSSION

The objective of this research was to study the context of creative tourism management in Ban Ngew Sub-district, Sam Khok District, Pathum Thani Province. This was done by conducting a baseline study in a community context along with site surveys and community data analysis. The researcher had organized activities and forums to clarify this research project. A total of 28 people attended the group meeting, consisting of the village headman, community leaders, people in the community, and municipal administrators in Ban Ngew Sub-district. The community needed to have support for enhancing skills in tourism attraction management and implementing concrete tourism activities. It was found that there were 8 important tourist attractions, namely 1. Church of Wat Song Phi Nong, abandoned. 2. Wat Song Phi Nong 3. The Victory Pillar of King Taksin the Great (Wat Nang Yat (former name)) 4. city observatory of Pathum Thani 5. Wat Pa Ngew 6. Wat Suan Mamuang 7. Wat Amphawaram and 8. Wat Phai Lom, but they still lack the management of community tourism. Researchers and community leaders were aware of this and focus on promoting tourism routes to tourists. It also recognized the importance of historical sites

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and applied the assessment results to the planning and development of creative tourism programs with the community by using community participation processes and designing tourism programs to suit each area. In addition, houses of community leaders were allocated to be the base for learning activities about Sabai Mon cloth to be a learning center within the community and as a base for learning activities for tourists to experience new experiences and access the uniqueness of Mon through tourism. The results of the evaluation after the development of community tourism programs when the recommendations from experts were applied, the conservation and promotion of cultural heritage were at an excellent level. Economic, social, and quality of life management, systematic and sustainable management of natural resources and the environment, community-based tourism management, and community-based tourism service quality was at a good level. When the community was educated on tourism management and skills were developed to communicate, it clearly shows the changes that had taken place. The community should use the identity of the community to make tourists aware of their uniqueness and show their potential to enhance tourism and prepare to welcome tourists in the future. The research result on the development of the program and participatory creative tourism activities based on the green map database of communities in Ban Pong, San Sai District, Chiang Mai Province showed that the community participated in the analysis of resources available in the process of planning and developing tourism programs and creative tourism activities together. The developed program was a community life education program, visitor attitudes towards the program, a measure of participation and learning attitudes in programming, and creative tourism activities. Finally, the model of the community learning process was: 1) Process-Participation processes were applied from the process of co-thinking, planning, implementation, and monitoring. 2) Productivity - This was a community-based learning model in tourism program development. 3) Outcomes - The community recognized the role of ownership in the care, allocation, and conservation of resources in the community [8]. Therefore, the researchers used related research studies as a guideline in planning to develop a creative tourism program in Ban Ngew Sub-district based on the principles of community resources, community history, and important tourist attractions within the community. The identity of the Thai-Mon community was then presented through the creation of a community-based tourism program.

According to the second research objective, the development of tourism programs using participatory processes had a process of organizing meetings to make people in the community aware of the conditions of the community. This program collected and analyzed historical data from the past to the present, along with choosing places and planning travel

routes, determining activities, specifying travel times, meals for tourists, vehicles used for travel, restrictions of the area, and price. The process of voting in meetings was used to bring about the goals of the collaboration. The implementation process involved preparing the site for tourists, arranging the tour guide, equipment for the base activities, and organizing the tour. The visitor satisfaction evaluation process found that joint surveys resulted in the identification of key points in the community along with the design of day trips. Then the activities were synthesized according to the duration of the tour. Finally, it was an 8-site tourism program along a tourist route with a total distance of 2.8 km along the route of the highway road. The community took into account the safety of traveling and therefore increased the learning activities of Sabai Mon cloth. There was a plan for the duration of activities starting from Wat Song Phi Nong, which had a parking area and could travel for community-based tourism such as bicycles or walking, which was a journey that reduces energy consumption and was environmentally friendly. Program design principles must take into account the weather conditions, the suitability, and the duration of the activities. The results of 27 participants in this travel program showed that they had a high level of tourism activity satisfaction with a mean of 3.87, followed by ease of access with a mean of 3.67, attractiveness had an average value of 3.53, amenities averaged 3.50, and accommodation had an average of 3.29, respectively. Satisfaction with community-based tourism was high. Promotion and conservation of local traditions averaged 4.19, followed by the friendliness of the people in the community with an average of 4.14, the cleanliness of tourist attractions was averaged 4.13, the expression of kindness among the people in the community was an average of 4.12, the average showing of generosity was 4.10, the average non-interference of tourists to sell products was 4.09, the average loyalty to tourists was 4.08, the average non-destruction of tourist attractions was 4.06, the average caretaker benefit of tourists was 4.04. and conservation and the development of the tourist attractions were averaged 3.97, respectively. This was in line with the research of [9] who studied the potential and modeling of community tourism routes and local guides of municipal communities in Na Krua Sub-District, Mae Tha District, Lampang Province. The results showed that the potential for community tourism management according to the 6 tourism components, namely tourist attractions, accessibility, amenity, accommodation, tourism activities, and ancillary services, was at a high level of opinion. Most people saw that Na Krua Municipality Community was interesting in terms of tourism resources that were historically important, cultural traditions, and community lifestyle. There was a comfortable journey and could choose to travel in a variety of ways, especially tourists from different areas and foreigners. It also created a form of one community-oriented tourism management route, that is, a

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tourism route for worshiping sacred relics, learning community lifestyles, wood carving. Importantly, there were training courses and building local guides for community tourism in Na Krua Sub-district, Mae Tha District, Lampang Province.

VI. RECOMMENDATIONS

The results of this research, the researcher could summarize the recommendations for the next research as follows.

1. Participatory marketing should be promoted among communities, researchers, and education agencies, along with guidelines for implementation, collaboration mechanisms, and exchange processes for sharing lessons learned between communities. Researchers and network partners should monitor and evaluate to consider continuing research that will drive tourism upgrading to accreditation and focus on marketing for tourism program sales, collaboration with non-governmental organizations and travel agencies interested in participating in tourism to promote the sale of community-based programs (Familiarization Trip: FAM Trip) to build familiarity with communities and attractions. In terms of public relations and extend to sales of tourism programs, in the long run, it must be promoted. There must be coordination in well-known community markets such as Ing Nam Sam Khok Market to sell the group's products. There is a plan to expand the connection of tourism routes to the district and provincial levels to drive awareness and be considered as public relations for the community for other agencies of Pathum Thani province to join together to promote the tourism potential of the community further.

2. The preservation of the annual Mon traditions such as the "Hae Hang Hong Thong Takhab" tradition should be supported because the community wants to support the development of people in the community, training in tourism, and career-building.

VII. CONCLUSION

In terms of the impact and sustainability of the changes, communities in Ban Ngew sub-district benefited from this research, the development of community-based creative tourism programs beneficial in the management of resources, cultural, social and economic, as detailed below.

1. The program contributes to the management of natural resources and the environment for the survival of communities based on natural resources, lifestyle and culture of local people. Connectivity and engagement with community resources in community-based tourism is a tool to promote sustainable resource management. The program also prides them on disseminating local knowledge, managing resources, creating tourism activities for tourists, participating in conservation and allocating tourism revenue along with supporting community development activities,

building cooperation of agencies in working as alliances with communities and conserving natural resources and the environment.

2. It contributes to the revitalization of local culture, way of life and culture that reflects the identity of the community. The strength of the community will enable the community to adapt to society while preserving the culture and adapting it to the era and passing it on to future generations. Community-based tourism is a tool to build pride among villagers for presenting stories about Mon culture through Mon Sabai Mon cloth to outsiders to know and experience the way of life of the Mon community. The retrieval of information and the transmission and revitalization of the culture from generation to generation will continue for as long as possible. The community is managed and jointly determines the way of life and culture to be presented and to create learning for visitors, as well as guidelines for tourists. When tourists are interested in exchanging and learning about lifestyle and culture with local people, it is another stimulus that makes the community proud and wants to present their own information. It is to engage tourists in their cultural activities and to impress them. Importantly, the youth of the next generation sees the value of their own community.

3. The program contributes to the development of people as a matter of social resources while driving pride in one's locality or ethnicity. It brings about cooperation and unity of people in the community. Social position and acceptance from outsiders is the key to maintaining a community and passing it on to the next generation to create pride in one's own identity and identity. Community-based creative tourism helps people in the community participate and define the role of the community, process knowledge management within the community, develop skills and add new knowledge to community members. It also builds confidence in dialogue with outsiders by Training to educate as a communicator. The program builds on the confidence that people in the community are able to present their problems and needs with external agencies along with their experience and success in people and agency development. In addition to developing people in the community, it is also a direct experience for people outside the community.

4. The program contributes to the community economy and the quality of life of the local people. Tourism draws people from outside to learn about the community. The motivation for tourists to come into the community is the different way of life and traditional culture. Attraction is a simple way of life that is connected to nature. Community-based tourism is therefore a supplementary income that can be used to improve housing, savings to be used in times of shortage and illness, or as a scholarship for children, but the villagers still carry on their traditional ways or alternative income for some families, additional occupations, creating jobs for people in the community. Community-based tourism is also a tool for

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improving cleanliness and hygiene. In addition, when the community becomes known, there will be agencies to support in the matter of consumption. In terms of tourism as a supplementary income, the villagers do not consider tourism as their main income and they can continue their normal life regardless of whether there are tourists or not

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Problems and Guidelines for Teaching Basic Thai Conversation as a Foreign Language for Chinese Students in Yunnan, China

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Abstract— Many problems were found in teaching Thai as a foreign language for Chinese students in Yunnan, China. According to the study of theories and concepts of foreign languages teaching, this article aimed to present problems and solutions for teaching Basic Thai Conversation as a foreign language to Chinese students in Yunnan. In addition, to assist students in learning, the instructional guidelines for Basic Thai Conversation mentioned in this article included getting to know students, time duration in learning, places for learning, learning materials, learning activities both inside and outside classrooms, learning media, and the application of modern technologies as well as learning measurement and evaluation. These guidelines were proposed to guide Thai language teachers in Yunnan to study and apply them in teaching and learning management

Keywords— Basic Thai Conversation, Teaching Thai as a foreign language, Chinese students in Yunnan

I. INTRODUCTION

Language is an important tool for communication because it conveys knowledge, ideas, and experiences. It is widely applied for communication in business, work, trade, politics, foreign affairs, as well as cultural exchange among people in the society. Therefore, language study is like a bridge connecting to broader communication for various purposes. Learning a foreign language is an essential process in language skills development. As a foreign language is used to communicate with foreigners, foreign language competency will bring benefits in trade, investment, economy, society, education, tourism, and cultural learning exchange [1].

Teaching Thai as a foreign language both in Thailand and abroad has been operating for decades. There are both short-term and long-term courses in public and private educational institutions. The courses are officially and unofficially arranged. According to a survey of the Ministry of Foreign Affairs, there are approximately 114 higher education institutions around the world, especially in Asia, in Europe, in United States, and in Australia, that offer Thai language courses, or the courses related to the Thai language and culture such as Asia studies or Southeast Asia studies. The number of the institutions providing Thai-language courses

tends to continuously increase although language centers and language schools for business purpose are not considered [2]. It can be seen that teaching Thai as a foreign language has greatly expanded.

Nowadays, not only westerners are interested in studying Thai as a foreign language, but easterners also started to pay more attention to practice Thai, especially among Chinese learners. Chinese learners give an importance to Thai language due to a variety of factors, including economic and trading activities, political communication for establishment of permanent regional bond, as well as the similarity of Chinese and Thai's societies and cultures. Hence, Chinese people presently have a high demand to do in-depth studies of the academic Thai language and to study Thai language as a preliminary short-term study for communication purpose [3].

The popularity of Thai language among Chinese is partly due to the policy of China government. Thai is used as the official language of Thailand that is a member of ASEAN Community. As can be seen, China government recognizes the importance of learning Thai because Thailand is the goal of China's The Belt and Road initiative project in the 21st century, China government has a key policy in order to develop China prosperity under the administration of President Xi Jinping [4]; Therefore, Thai language education can be a bridge to connect international relations in many

areas; for example, diplomacy, business, social and cultural relations in terms of tourism that have been always developed. This way of development is relevant to [5], as well as R.Chiranukrom et al. [6] who stated that Thai language has become increasingly significant in the region in the sectors of business and tourism, as well as the sector of advanced research in China. Consequently, a lot of educational institutions have an effort to design instructional curriculum for teaching Thai language to Chinese learners in the recent years.

Recently, many public and private educational institutions in China have launched Thai-language courses. The survey reveals that China has the highest number of people desiring to study Thai in high school and tertiary comparing with other countries in Southeast Asia and Western countries [6]. Moreover, after Chinese government announcing "One Belt One Road policy" in 2012, 3,454 Chinese students have chosen to study foreign languages, especially those ASEAN languages [4]. In the same way, N. Kupongsak [7] stated that Thai is regarded as more popular among Chinese students than any other neighboring languages such as Laos, Burma, Cambodia and Vietnam. Thus, the survey has proven that Chinese learners are increasingly interested in learning Thai.

Chinese government is interested in promoting all levels of Thai language, from basic to advanced, for more comfortable communication and policy implementation between the two countries. Focusing on the Thai-language instructional curriculum at a high level and teaching Thai as a foreign language are considered as critical ways to improve country's strategy in terms of tourism, economy, society, national security and cultural exchange. It is necessary to prioritize the provinces close relationship with Thailand, such as Yunnan and Guangxi, to educate personnel in the country, to enhance knowledge, and to provide true understanding towards varied aspects involving to Thai community, culture, and language. Especially, the personnel should use language correctly and appropriately. [8]. Accordingly, the Office of the Higher Education Commission of Yunnan strives to push forward more policies for teaching Thai to Chinese students in Yunnan. The subjects in the curriculum include basic Thai language course, basic Thai conversation, Listening-Speaking-Reading-Writing Thai and any other courses related to language study, Thailand's society and norm.

The Faculty of Languages and Cultures of Southeast Asia and South Asia, Yunnan Nationalities University, Kunming, Yunnan, China is considered as the first educational institution in Yunnan that has been opening Thai language major for decades. Furthermore, this university is regarded as

one of the most prestigious Chinese educational institutions providing Thai language curriculum. The author has had the opportunity to be an exchanged teacher teaching Thai (basic Thai conversation, speaking and Thai literature) under an excellent relationship and cooperation between Thaimajor, the Faculty of Humanities, Chiang Mai University and Thaimajor, the Faculty of Languages and Cultures of Southeast Asia and South Asia, Yunnan Nationalities University in 2014, 2018 and 2019.

In terms of teaching and learning management of basic Thai conversation courses, the author has noticed some problems occurring while teaching. The problems are divided into 3 aspects including 1. personnel performance, 2. quality in teaching and learning management, activities, media and the use of technology as teaching materials, and 3. the accuracy of measurement and evaluation.

II. PROBLEMS REGARDING WITH ORGANIZING LESSONS

1) A shortage of qualified personnel problem : China has tried to promote the policy to teach foreign languages and put a lot of effort to insert Thai language education in Yunnan. Currently, there are more than 20 education organizations in Yunnan proposing Thai language to be taught as one subject in the curriculum. Most teachers are Chinese who have experienced in studying Thai both in China and Thailand. Moreover, as the author is assigned, Thai teachers are also invited to teach in other subjects, especially Thai conversation, Speaking and Thai literature.

There is a great demand of Thai language personnel, whereas the rate of native Thai teachers is insufficient. Only a few large educational institutions have an agreement to cooperate in recruiting native Thai teachers from Thailand. On the contrary, resulting from the restrictions on recruiting personnel and insufficient budget, a large number of institutions are still unable to hire proficient Thai language teachers who are directly graduated in the field related to Thai language education. Similarly, Z.Xiaoan [9], referred to the management of Thai-language teaching in many educational institutions in Yunnan. It can be implied that several Thai language institutes in Yunnan lack both fluent Chinese and native Thai teachers.

When employing non-native speakers without precise Thai language background to instruct Thai language, those teachers often do not acknowledge useful guidelines for teaching Thai to Chinese learners. Sometimes, they do not use qualified teaching strategies to practice students' skills and promote fluency. Thus, the students may not reach the expected standard of language proficiency. Additionally, the teachers usually conduct the class using Grammar-Translation Method that will be mostly lectured in the rooted language of

the learners. The students will only follow the instructions given by the teacher. Therefore, this kind of teaching method is like suggesting basic concept for learning a language rather than providing real language usage[10]. So it will affect to students' language acquisition.

This grammar and translation approach focuses on reading and writing skills instead of listening and speaking skills. Hence, although the learners can memorize the rules of Thai language, they lack listening and speaking skills. This is regarded as an unnatural way in learning a new language. To learn a foreign language, the learners should firstly start practicing listening and speaking skills. They should learn the pronunciation and use the language in real communication. Putting the emphasis only on reading and writing skills causes most students' lack of assertiveness and confidence in learning language. The students cannot listen and speak Thai as good as it should be. In accordance with S. Witayasakpan[11], he pointed out that Thai as a second language course in China has not much different from teaching method in Thai or other foreign languages, such as teaching English in Thailand. The teachers use outdated method as they only highlight memorization, pronunciation, and individual answering questions. But the results of this method have an extremely different quality.

Many teachers providing lectures to Chinese students in Yunnan are native Thais. When teaching Thai to foreigners, having an advanced knowledge about Thai language may not be enough to get the courses successful. Accordingly, the teachers should have knowledge and understanding towards the principles of teaching Thai as a foreign language. For instance, the concept of teaching foreign languages, organizing activities in the class, the use of teaching materials, and accurate evaluation [12].

The Thai teachers should always learn additional knowledge in order to be able to understand the students' problems and fundamentals before planning and arranging instructional activities. For the students' highest benefit, the teachers should also prepare materials, apply other technologies in teaching, and provide qualified measurement and evaluation.

2) Problems in the quality of media, activities and the use of technology for teaching: Teaching and learning may not be as effective as the expected goal as some teachers do not prepare the lessons in advance. The instructors should not underestimate that they do not need to prepare much in advance because the lack of carefully planning will lead to uncontrollable teaching. The instructors will not be able to reach lesson's objectives. The learners will have unsystematic learning process and lack ability to connect various ideas together. Therefore, it is essential for teachers to prepare

promising lessons before every class, especially in the context that the learners do not use Thai language in their daily lives [13].

The unprepared lesson problem results in the lack of appropriate and up-to-date teaching materials and media. The students' speaking skill practice is not highlighted in the instructional activities. The lack of current technology as a learning assistance contributes to the learners' lack of motivation and confidence in learning Thai. In the same way, Z. Xiaoyan [9] discussed that many educational institutions in Yunnan lack equipment, material, and appropriate environment in studying Thai language as Chinese student seldom have a chance to use Thai in real conversation, so that this issue causes the students to be unconfident in speaking Thai.

Hence, qualified personnel remain as an important factor affecting the quality of the students' learning progress because they can help solve the students' problems including listening, speaking, reading, and writing. Firstly, listening problems are caused by a small number of Thai vocabulary knowledge. The students do not understand meaning of words, so they do not understand sentences and main ideas. Secondly, the students have speaking problems because of unclear pronunciation and being afraid of speaking. Thirdly, reading problems occur when the students are lack of vocabulary memorization, and they misunderstand meaning of text that escalating into the inability in reading comprehension. These issues lead to writing problems. For instance, the students use wrong word choices, spelling, and word orders.

3) Problems in measurement and evaluation: The authors have found that most instructors lack effective and standard measurement and evaluation. This is the reason why they cannot achieve the exact outcome whether the lesson they give can meet the objectives or not. Conducting evaluation is the last step of teaching and learning which is intrinsically critical for both teachers and all learners. To describe, the instructors can obtain the performance of their lessons, activities, and the materials used in class. Similarly, the learners will know if they are able to use Thai language more or less, or if they have any flaw in any skill or subject. Thus, they can improve their capability to use Thai language more correctly and confidently [14].

In measurement and evaluation of basic Thai conversation courses in Yunnan, the learners often take a role play. They have conversations in pairs or discuss with group in front of the class. Then, they assess levels of confidence, correct pronunciation, and communicate with accurate grammatical structure. Lastly, they grade the students without a vivid criterion in scoring. On the contrary, measurement and

evaluation are one of the keys in teaching Thai as a foreign language. The teachers should study the principles clearly and examine if they are relevant to the objectives or not.

Basic Thai conversation courses is an essential subject for improving students' listening and speaking skills. It also helps enhance students' reading and writing skills. The traditional teaching method relies on vocabulary memorization, translation, sentence structure. It can be stated that this kind of methods lacks creativity. If the lesson providers continue applying this traditional way, the class may not catch attention and the learners may forget the vocabularies, sentences, and grammatical rules easily.

From the importance of the drawbacks mentioned earlier, the author has studied literature reviews related to teaching Thai as a foreign language and methods of teaching foreign languages. The concepts and teaching methods are indicated as follows:

III. FOREIGN LANGUAGES TEACHING METHODS

There are several different methods used in teaching foreign languages. The authors will present the Audio-Lingual Method and the Communicative Approach suggested by R. Plangsom [15] and N. Permkasorn [16] because they are natural language theories that enable learners to practically use Thai language. Furthermore, the author had used these theories in teaching for three academic years. It was clearly seen that these techniques are more excellent than others. At this point, the author aims to point out an overview of approach, method, technique, advantages, disadvantages, and the solutions of the problems in accordance with the teaching strategies in the basic Thai conversation course.

1. The Audio-Lingual Method: The Audio-Lingual Method is the way that help the solve problems of Grammar Translation method. This method utilizes the ideas from Behaviorism. The behaviorists believe that language is a matter of habit and familiarity, and each language has a particular structure. This way of teaching emphasizes the comparison between the mother tongue and the foreign language. Nevertheless, it is essential that the teachers have enough language competency about the learners' mother tongue to suggest and validate the structural comparison between the two languages. The instructors must be able to teach language structures, vocabulary used in daily life and conversations, starting from easy to challenging levels, without explaining the linguistic rules. Furthermore, there must be activities for learners to repeatedly practice both listening and speaking until they become familiar with the language. Apart from that, the reinforcement and reward should be used to create motivation for students. This concept has various types of teaching styles, such as Repetition Drill,

Chain Drill, Use of Minimal Pairs, Single-slot and Multiple-slot Substitution Drills, Transformation Drill, Question-and-answer-Drill, Complete the dialogue. The Audio-Lingual Method are advantageous in the way that they assist in promoting correct pronunciation, vocabulary, and sentence structure. In contrast, they still have limitations as they are not different from learning Thai with the existing methods. The students may be lack of creativity when they must talk about unfamiliar situations and other forms of communication. As a result, all teachers should insert more various events together with the application of language teaching methods for students' broader range of communicating background. This method will help them practice and learn Thai language in several contexts.

2. The Communicative Approach: This approach is the concept from a group of linguists who use language for communication and believe that language is a tool of communication. Those linguists also state that language learning skill is innate and related to the learners' brain processing on language's rules, sounds, vocabulary, and language structures. Then, the learners can understand the context by integrating knowledge with everyday language as well as social and cultural contexts. This concept prefers the emphasis of the use of language in a correct and proper way rather than the principles. This approach uses teaching strategies and activities by introducing them at the beginning of the class to draw attention. Then, the teachers can teach vocabulary, structures, and patterns of usage while teaching. In addition, teachers can also apply multimedia, images or videos, simulations, or real objects as teaching materials. At the same time, they should allow learners to practice and do a role-play in several context based on personal interests. This will help learners gain confidence in learning Thai language from such teaching activities. The teachers need to boost students' confidence since students normally do not confident to express themselves and they are nervous to use Thai language wrongly. Most importantly, the teachers should not blame them while they are practicing in front of the class as blaming will make the students afraid of speaking.

According to the Audio-Lingual Method and the Communicative Approach mentioned above, it can be seen that both methods of teaching foreign languages can enable the learners to study languages naturally in a hierarchical manner until becoming proficient. The author strongly agrees with these techniques in accordance with the studies of second language and related documents collected by S. Witayasakpan, R. Plangsom and S. Ponmaneeas well as the author's real experience in teaching Thai as a foreign language and basic Thai conversation to Chinese students. Additionally, the author would like to propose guidelines for

teaching and learning basic Thai conversation and the activities, including the application of materials and modern technology along with the promising measurement or evaluation. These guidelines can be used to as a lead for other teachers to study the preliminary and to adjust the lessons for more suitable learning in various contexts.

IV. GUIDELINES FOR TEACHING BASIC THAI CONVERSATION

Teaching and learning basic Thai conversation for Chinese learners should begin with the acknowledgement about the learners' background. The duration of teaching, the location that will lead to the use of materials, class activities, and media. The updated technological tools should be precisely and appropriately applied for class management.

1) Getting to know students is the most important factor in teaching. So, the teachers should ask basic information from students as follows:

1.1 Learner's background: Teachers should know who the learners are, where they come from, whether they are Han Chinese or they have got other ethnicities because, in some cases, the learners may not be able to pronounce certain Thai words clearly due to the influence of their mother tongue toward their Thai pronunciation. That is the reason why teachers should ask the students to provide their history. Then, the teachers can study for further documents according to the students' mother tongue which can affect their Thai pronunciation.

1.2 Fundamental knowledge that students have about Thai language: Teachers should ask questions or take a test to assess the learners' understanding towards Thai language in order to examine their levels of language competency.

1.3 Learners' needs: It is imperative that teachers inquire about the learning goals of the learners because students presently do not only want to learn basic Thai conversation, but some may also want to know vocabulary used in nowadays Thai conversation for real communication.

2) Duration of learning management: Determining the learning curve is essential in designing the contents and activities for learners. In general, the duration for Chinese learners in Yunnan is approximately 18 weeks, 2 hours a week, for a total of 36 hours. That means the contents and additional activities have to be designed in consistent with the time period that the teacher has perfectly set to prevent duplication or omission of the content.

3) Teaching Site: Usually, In Yunnan almost Thai classes are conducted in a classroom provided by the university in which the teachers can use to teach Thai language, such as grammar, conversation and speaking. But other teaching materials are required for the learners' better understanding and clearer

pictures in their mind about some vocabulary. The most common problem found while teaching is that the students lack opportunity to try speaking Thai with a real native speaker, and that needs the teachers to design the instruction assisting in the learners' speaking practice with native speakers, The author will mention about this idea later in the learning activities outside the classroom.

4) A textbook for basic Thai conversation: After the teachers have known different traits of the learners, teaching duration and the place for teaching, they can choose to use or design a textbook consistent with the aforementioned factors. They can use the textbooks from both famous Thai and Chinese authors who have experiences in teaching Thai as a foreign language. Also, all books should contain the additional vocabulary, sentence structure. The sentences in the conversation regard various situations, activities at the end of the chapter to test vocabulary, sentence structure, and conversation. However, teachers should include vocabulary or sentence structure as well as the current Thai cultural context to help the learners to get in touch with updated Thai practically-used words and terms.

5) The Activities for Learning in Class: Before organizing an actual in-class activities, the teachers should prepare textbooks, media, and teaching activities that are appropriate and consistent in terms of content, time and the characteristics of learners. In terms of arranging the activities both inside and outside the classroom, the instructors can organize activities related to the concept of the Audio-Lingual Method and the Communicative Approach by focusing on the learners' practicing speaking about the topics they have learned until they get used to the lessons and are confident to use Thai language. It's important for students competence.

The main aim of the basic Thai conversation course is to provide teaching and learning approaches to enable learners to study listening and speaking for Thai conversation in daily life, including studying social and cultural context and Thai manners in consistent with listening and speaking in the actual conversations. Accordingly, the learners must be able to remember Thai words and sentence structures until they are able to listen and speak Thai using vocabularies and the structures in the right and proper way to communicate about social and cultural context. When teaching in the class, the lessons and activities should be the content that learners can actually use in Thai conversation with Thai people.

The author has established the suitable contents for learning basic Thai conversation throughout the course in 1 academic year. The contents are explicitly divided into 25 units as follows: Unit 1: Introduction to Thai Language, Unit 2: Greeting & Introducing yourself, Unit 3: Where do you stay, Unit 4: Fruits & Vegetables, Unit 5: Thai Food & Local Food,

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Unit 6: Food cooked to order & Noodles, Unit 7: Beverage & Tastes, Unit 8: Color, Unit 9: Size and Shape, Unit 10: Going Shopping, Unit 11: Place & Direction, Unit 12: Day Date Month Year & Time, Unit 13: Body & Health, Unit 14: Family & Appearance, Unit 15: Hobby, Unit 16: Travel, Unit 16: Seasons, Unit 17: Communication, and Unit 18: Saying Goodbye. All of which can be added social, cultural and Thai etiquette contexts relevant to listening and speaking in daily-life conversation, so that the learners can enroll to study really useful Thai lesson.

5.1 In-Class Activities: When the teachers have designed the content in the learning, they can organize the in-class activities separated into 3 procedures consisting of presentation, practice, and production. The author will give an example to illustrate clearer incident by when referring to chapter 2 (Greeting & Introducing yourself) as follows:

In the presentation, the teachers can start the class by greeting students, and then use the context around them to stimulate their interest driving them to participate in answering questions, illustrate with saying “สวัสดีค่ะ” on the first day that the students study greeting lesson. However, the teachers should not let the same learner repeatedly answer the same question, or else it may make others do not dare to answer.

In the practice, the teacher should use the vocabulary from the presentation into the lesson to teach in the first step because some students may not know those terms. Then, the teachers can gradually add more words prepared, such as “คุณ”, “ชื่อ”, “อะไร”, before teaching structures. In this stage, teachers should have the learners pronounce the words 1-2 times in order to practice the learners' skills and lead to clear speaking. Teachers must be aware that learners have just begun learning. If they face too much criticism, they may lose confidence to pronounce or practice speaking Thai conversation. Fortunately, the teachers can instead record and evaluate the students' conversation skills. Then, the teachers can inform the students individually or in group according to the activities conducted in the class. Subsequently, the linguistic structures are added. The phrases in Thai conversation such as “คุณชื่ออะไร” are introduced to the students and the teachers should also teach the sentence patterns related to the actual communicating situations in the present time. It is noted that when teaching Thai words and structures, teachers should organize activities for the learners to practice with their friends in class.

In the production, the teachers should review what has been taught and then give students a chance to review by themselves. As R. Plangsom [17] said, in each hour, teachers should review what students have learned and how the sentence is used. So that the students can use it to communicate in real daily life. It can be seen that giving the

learners a review like this will definitely benefit their learning process.

5.2 Activities outside classroom: Apart from learning in a classroom and self-study, teachers can also assign homework to the students to practice speaking Thai with partners about specific topics after learning in the class. The partners include Chinese friends, Thai friends, or those who are learning Thai. Presently, COVID-19 outbreak causes the reduction of people's travelling, meetings and face-to-face communication. On the other hand, facing with pandemic is no longer an obstacle in learning Thai since teachers nowadays can set the learners to practice conversation through Wechat application.

Wechat is an online chatting application that can be used to communicate with other people all around the world. It is popularly used among Chinese students as it has a similar functionality to Line and WhatsApp which are well known among Thai and other countries users. Ultimately, after assigning students to practice speaking via the application, the instructors should have them submit worksheets and audio or video to check the correctness and errors in the language used by the learners. Then, the teachers can collect problems found in the students' practice and suggest them to improve their mistakes in the future.

The use of Wechat to help practice Thai for Chinese learner is effectively workable as many worldwide studies indicates the advantages of teaching via WhatsApp. There are also the examples of teaching Thai along with the use of WhatsApp in neighboring countries. S. Jaratjarungkiat and H. Xaioling [18] have conducted the study about WhatsApp for learning Thai language as a foreign language on the sample under-graduated students of Nanyang Technological University, Singapore who registered in Thai language at the basic level course. The results showed that the learners are more satisfied and able to improve their Thai language learning.

Assigning students to practice Thai with native Thais often encounters the problem that the learners do not know Thai friends, or the number of Thai friends is not enough for practicing all together. Thus, teachers should introduce Thai friends to the learners by searching for volunteers from Thai Student Association in Yunnan, which has more than 800 Thai students per 1 academic year. In this way, the teachers can propose the learners to choose to talk to a lot of Thai friends. Having the students to practice their Thai skills in this way serves as a medium between Chinese and Thai companions in learning more about each other's languages as well as the social and cultural context of both countries. It is the same as a method to naturally learn foreign language that can help promote conversation and national background.

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The methods mentioned above are the approaches that the author has tried in the class, and the results obtained after the class are found that many students are interested in the activities and have more opportunity to practice speaking; contributing to higher confidence level in speaking Thai.

6) Media assisting in learning Thai language: Teaching both inside and outside classroom plays a vital role in enhancing knowledge among the learners. Moreover, the teaching materials are also important in the way that it can help teachers to succeed in teaching according to the lesson plans, since choosing the right teaching media, time and place will encourage the learners to understand the lesson more easily and clearly. According to the media characteristics, the teaching materials can be distinguished into 4 types including media material, printed media, mixed media and information and technological media [19]. The use of other modern media displaying the content in the lessons can also help make the curriculum more interesting.

Nowadays, there are not just the use of pictures, flashcards, projecting images from MS PowerPoint as same as the traditional ones but the teachers can also represent vocabulary and practice memorizing new words via a game Decoder or guess vocabulary from Quizizz to make the lesson more entertaining for students. Nonetheless, the teachers must ensure that the learners have known enough Thai vocabulary to a certain extent to be able to use these games in conjunction with the lesson, and the teachers should select a variety of teaching aids that are suitable to and consistent with the students in the most concrete way.

7) Application of technology in teaching Thai language: The application of technology contributes to students' increasing motivation, and the use of modern devices such as a smart phone having online application together with teaching lesson allows students to learn Thai language more easily since the students themselves can access lessons anytime and anywhere according to their interests. Therefore, the teachers should recommend that students install an application to learn Thai vocabulary and conversation such as Learn Thai Language: Listen, Speak, Read Learn Thai-15,000 Words, Simply Learn Thai or other applications which the Chinese learners will be able to install on their phones. In that way, the students can use the apps to review the vocabulary, pronunciation and basic Thai conversation as often as they want, and it also encourages them to practice more; considering similar to W. Wiboolyasarin's idea [20] that current teaching methods and modern technology can help solve teaching problem more efficiently. This allows the individual to get accessed to and take advantage of the lessons anytime and anywhere. So this self-study can also benefit the learners in another way.

Then, after organizing activities in the class together with self-learning and various forms of assignment of the activities outside the classroom, what the teachers should do in the next step is allowing the learners to summarize the knowledge they have studied in every lesson: main aspects of the language, context, the problems found and guidelines leading to problem solving.

8) Methods of measurement and evaluation: Teachers should not neglect the assessment of learners' performance because those evidences can be used as a proof to determine whether the learner can achieve the objective and if the aiding media is conducive or not, so that the teachers can summarize the results to improve and solve problems in teaching learning Thai language.

The learning outcomes can be measured and evaluated before, during and after the class by observing, questioning and using multiple-choice exams. In this case, the instructors should study the requirements and scoring criteria to determine what skills and knowledge the learners want to measure before taking any action. For example, there are the scoring criteria for Thai conversation in 5 parts: meaning comprehension, language correctness, pronunciation clarity, speaking fluency and completeness of answer, etc.

The authors have found that the evaluation during and after the tutorial where the teacher manages to assess the students periodically for every unit let learners build a conversation in each unit, and the learning itself can then be tested in front of the class: students discussing in pairs or in groups. After that, every speaking skill are assessed to find out if the learners are able to communicate effectively or not, and it has been found that it is a positive follow-up and evaluation of learning outcomes in Thai conversation courses.

The author, as an instructor, does not criticize the learner while or after the class discussion test. Instead, the author assesses and records the students' performance in the assessment form the author having designed. Additionally, at least one of the students' friends is also a co-evaluator, and the learners have to assess themselves as well. As a result, this assessment has a total of 3 sides for learners to use the output to improve further, which will be a great benefit for them.

V. CONCLUSION

For teaching Thai language to Chinese students in Yunnan in the present, it is essential to emphasize many aspects of the teaching process. The instructors should focus on the objectives of the educational institution teaching management, the concept of teaching, teaching methods and strategies, the conduction of instructional activities, and the application of modern and technological media. Furthermore, the measurement and evaluation are also highlighted since the

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instructors can assess the learners' performance in accordance with learning style and traits of diverse learners before designing lessons. To summarize, these guidelines for teaching basic Thai conversation as a foreign language can increase the efficiency of teaching and learning management.

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Development of Instructional Model Based on Design Thinking and Reflective Practice Approaches in creating innovative students' educational administration in the field of educational administration innovation, collegemanagement innovation Rajamangala University of Technology Rattanakosin

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Abstract— The teaching model is based on the concept of design thinking together with the concept of reflection and practice to promote the ability to create innovation in educational administration of students in the field of educational administration innovation, College of Management Innovation, Rajamangala University of Technology Rattanakosin. It will motivate individuals to bring creativity together with inspiration to create and develop innovation that reflects the uniqueness of the educational administration profession of students in the field of educational administration innovation.

This research aims to create a teaching model based on the concept of design thinking together with the concept of reflection and practice in order to promote the ability to create innovation in educational administration of students in the field of educational administration innovation by Using the concept of innovative design thinking together with the concept of reflection, thinking and practice are divided into 2 phases: Phase 1: Study and analysis of fundamental data in To develop a teaching and learning model based on the concept of design thinking together with the concept of reflection and practice to promote the ability to create innovation in educational administration of students in the field of educational administration innovation by studying documents and research that Involve and examine the definition and determination of the ability to create innovation in educational administration of students in innovative educational administration by experts. Teach according to the concept of design thinking in conjunction with the concept of reflection and practice consisting of a manual teaching model. And learning management plans. The samples were five experts in curriculum, instruction and evaluation. The research tools were the evaluation form, the teaching model based on the concept of design thinking together with the reflection concept. Think of the compliance with the validity and suitability of the teaching style and related documents and data analysis using mean and standard deviation.

The results of the research can be concluded that the teaching model based on the design thinking concept. Together with the concept of reflection and practice to promote the ability to create innovation in educational administration of students in the field of educational administration innovation consists of 5 steps: 1) preparing and creating innovation in educational administration 2) education. 3) researching and verifying solutions to school administration problems; 4) creating and verifying an innovative model for school administration; and 5) disseminating and reflecting on the evaluation of the education model. Teaching It was found that the teaching model based on the concept of design thinking together with the concept of reflection and practice to promote competence was appropriate at the highest level, those interested in implementing this style of instruction should carefully study the Instructional Model Manual in order to achieve the objectives of the teaching style. According to the concept of design thinking together with the concept of reflection and practice

Keywords— teaching style, design thinking concept, reflection, practice to promote competence, ability to create innovation in educational institution management

I. INTRODUCTION

Century Education Challenges 21 To prepare students for life in the century 21 is an important aspect of the social transformation trend that occurs in the century. 21 Affecting the way of life of society as a whole, teachers need to be alert and prepared to organize learning to prepare students to have the skills for going out into the world, that is, learning skills (Learning Skill) resulting in a change in learning management so that children have knowledge, abilities and necessary skills as a result of the reform of teaching and learning management. as well as preparation in various fields, which [2] discussed skills for living in the 21st century as follows:

Core Subjects) include the mother tongue and major languages of the world, arts, mathematics, governance and civic duty. Economics, Science, Geography and History This core course will lead to the formulation of conceptual frameworks and strategies that are important to Learning management in interdisciplinary content (Interdisciplinary) or topic for the 21st century by promoting understanding of the core subject matter. and insert the skills of the century 2 Access all core subjects including Global Awareness, Finance, Economics, Business and Entrepreneurship (Financial, Economics, Business and Entrepreneurial Literacy), Good Citizenship (Civic Literacy and Health Literacy

Learning and Innovation Skills It determines the readiness of students to enter today's increasingly complex world of work: creativity and innovation, critical thinking and problem solving, communication and cooperation

Information, Media and Technology Skills Due to the fact that information is disseminated through many media and technologies, learners must have the ability to demonstrate critical thinking skills and Can perform a variety of tasks based on knowledge in many areas as follows: information knowledge Media knowledge and technology knowledge

Life and Career Skills in living and working in the present era to be successful Students will need to develop key life skills: flexibility and adaptability, creativity and independence. Social and cross-cultural social skills Being a creator or producer Productivity and Accountability, Leadership and Responsibility.[3]

The 21st century skills that everyone must learn throughout their lives are learning 3R x 7C. The 3R skills are Reading, (W)Riting (Writable), and (A)Rithmetic's (. Calculations as). The learning skill 7C consists of Critical Thinking and Problem Solving (critical thinking skills. and problem-solving skills) Creativity and Innovation (creativity and innovation skills) Cross-cultural Understanding different paradigms)

Collaboration, Teamwork and Leadership (skills in cooperation, teamwork and leadership) Communications, Information, and Media Literacy and media literacy) Computing and ICT Literacy (computer skills and information and communication technology) and Career and Learning Skills (career skills and learning skills)[1]

Education is a social process of creating and developing people to have knowledge. Thoughts, behaviors and virtues enable them to live happily in society. which is in line with the 11th National Economic and Social Development Plan (2012-2016), has a focus note development of the country towards balance and sustainability begins with developing people to be strong and ready for future economic and social changes. By enhancing them to be physically and mentally ready, healthy, strong, capable of thinking and analyzing. Creativity is ethical, knows one's own rights and duties, and respects the rights and duties of others, while strengthening the factors contributing to the development of the quality of people in society must be strengthened. Immune to various changes that will occur in the future.(National Economic and Social Development Council, 2012), which the guidelines are consistent with the policy of the Ministry of Education to develop the nation's youth into the 21st century world by aiming to encourage students.to be virtuous, love being Thai so that Real learning is in the real world or in real life. Studying subjects in the classroom is also fictitious learning. "So, teachers for students have to design learning for students" to learn in conditions that are as close to real life as possible. Teachers for students must change the learning goals of students from focusing on studying subjects to gain knowledge. Let's move on to developing skills that are essential to life in the new era Emphasize that learning in the new era Must learn to create skills for life in the 21st century, which the duty of teachers for students must change from focusing on "teaching" or teaching to acting to spark interest in learning (inspire) to students, allowing students to learn by doing Practicing (learning by doing) and students cultivating skills for life in the 21st century by doing their work as a team with their fellow students. Emphasis on cultivating learning skills and search for knowledge more than knowledge Teachers for students have to change the way of working from being alone to working and learning from working as a team teacher. 21st century learning process.[4]

From the principles of the Ditching concept, design can be used as a guideline for creating innovations in nursing but found that there are gaps (gap) of reasoning under knowledge. and nursing experience in decision making Methods for solving the problems of teaching and learning models based on the concept of design thinking together with the concept of reflection on practice to promote competence to create

innovation in educational management for students in the field of educational administration innovation College of Management Innovation Rajamangala University of Technology Rattanakosin.

Therefore, studied the concept the theory that will be applied as a common fundamental idea Support in teaching and learning models based on the concept of design thinking together with the concept of reflection on practice to promote competence to create innovation in educational management for students in the field of educational administration innovation. College of Management Innovation Rajamangala University of Technology Rattanakosin, which includes the reflective practice approach, reflecting on the practice of basic examination. Thoughts and self-reflection point of view and learn through action with reflection on act with criticism leading to action decisions and the concept of reflection on practice to promote competence to create innovation in educational management for students in the field of educational administration innovation.[5]

From past research studies No research has been found. about teaching and learning styles that promote competence in the creation of innovative thinking, reflection, and practice to promote competence In creating innovation in educational management for students in the field of educational management innovation, there is interest in the development of teaching-learning models based on the concept of design thinking. together with the concept of reflection on practice to promote competence to create innovation in educational management for students in the field of educational administration innovation. College of Management Innovation Rajamangala University of Technology Rattanakosin to develop a regenerating teaching model based on the design thinking concept together with the reflection of practice to promote The ability to innovate nursing directors of students in the field of educational administration innovation College of Management Innovation Rajamangala University of Technology Rattanakosin in order to obtain a model of teaching regenerating with specific characteristics and procedures of rapu that encourages students to Has the ability to innovate nursing directors, including the knowledge gained from teaching and learning according to the learning model created by the researcher to achieve quality create value for the education administration profession as an upgrade to the standard and quality of nursing services to excellence and sustainability forever.

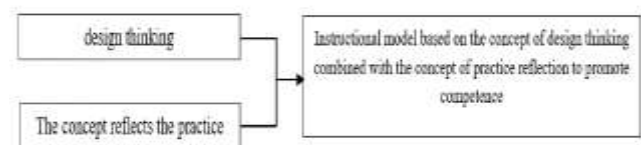
II. RESEARCH OBJECTIVES

To develop a teaching and learning model based on the concept of design thinking together with the concept of reflection on practice to promote competence to create

innovation in educational management for students in the field of educational administration innovation. College of Management Innovation Rajamangala University of Technology Rattanakosin.

III. RESEARCH CONCEPTUAL FRAMEWORK

The study came up with the principles of the Divinity tradition. design with the concept of reflection on practice to Develop a teaching and learning model based on the concept of design thinking. together with the concept of reflection on practice to promote competence to create innovation in educational management for students in the field of educational administration innovation College of Management Innovation Rajamangala University of Technology Rattanakosin as shown in picture 1.



Important steps in design thinking learning management

STEP 1 Preparation Teachers prepare to assign projects identified in the lesson plan. In class, the teacher may broaden the scope of the project. in accordance with the course or aptitude of students and prepare learning resources sample data as a guideline for students to study and research more You can use the website or moodle program to update the learning resources. and setting various appointments related to project implementation

STEP 2 Thinking and choosing a topic Let students be the makers of their own project design options. To provide opportunities to know how to research and create innovative knowledge Teachers may ask students to review relevant literature first. to guide the selection of topics. teamwork Stimulate brain storms to create skills. critical thinking skills communication skills and collaboration skills

STEP 3 Writing an outline Writing an outline of a project is to create a mind map showing concepts, plans, and steps of the project. To allow relevant parties to see the workload, role and duration of operations This makes the project more efficient.

STEP 4 Implementation of the project Students implement the plans laid out in the project outline. If the layout is already laid out Students will know for themselves what to do next. without having to ask the teacher During the course of the process, teachers may have close consultation or work together to solve problems with the students.

STEP 5 Project Presentation Students summarize the results. by writing a report or other forms of presentations such as brochures, posters for exhibitions Submission page reports

via website or email. If there is a contest or competition, the students will be more enthusiastic.

STEP 6 Project Evaluation Project assessments should include a variety of learning assessments, such as student's self-assessment, evaluate each other, third party assessment. Assessments do not only measure knowledge or final results, but will also measure the process of obtaining results. Assessment by multiple teachers will also create interaction and exchange between teachers.

Learning through activities (Activity-based Learning) In order to adhere to the principle that students create knowledge by themselves, "Child Centered", learning by doing, learning by doing, and practicing for learning and problem solving, Doing by Learning is therefore seriously used in the education reform of Thailand. This kind of learning With the nickname "Teach less, learn a lot, Teach less. Learn More", learning by Doing uses "Activities" as the main teaching method by "Practice Doing" in every content. step of learning Its self-learning Everyone in the group is a practitioner. Teachers are mentors and trainers. But the activities used must be effective in learning the content. Purposeful, fun and interesting, not repetitive until boredom. Therefore, teachers are "Activity Designer Activity Designer" professional who can "visualize the activity" immediately.

Learning through problem solving (Problem-based Learning) is another learning style that focuses on the student center, and know how to work together as a team of learners in which teachers are less involved but are the most challenging to teachers. problem-based learning process Students will be organized into small groups of approximately 8 -10 people, with a teacher or instructor in the group 1 person acting as a learning support. (facilitator) consists of the following steps:

1. When students receive a problem Students will understand or clarify the words in the problem. to understand the same
2. Capturing important information points or identifying problems in the problem
3. Brainstorm to analyze the problem. Discuss an explanation What is the problem of each issue? how did this happen how it came to be by relying on the same knowledge as the learners have
4. Make assumptions to find answers to various issues, and rationally prioritize possible assumptions.
5. Based on the hypothesis Learners will assess what knowledge they have. Is there anything that is unknown or lacking in knowledge? And what knowledge is needed to prove a hypothesis? which is connected to the problem at this stage, the group defines a learning issue or learning objective to further research.
6. Research and study additional information from various learning resources such as textbooks, journals, teaching

materials. laboratory study Computer-assisted teaching, the Internet, or consulting an expert teacher in a specific field and to assess the correctness

7. Use the information or knowledge acquired, synthesize, explain, prove hypotheses and apply them to suit the problem, with a summary of general concepts or principles

Steps 1-5 are the steps within the group process in the classroom. Step 6 is the activities of individual learners outside the classroom. And step 7 is the activity that comes back in the group process again.

Learning through scientific processes or research methods Research-based Learning Research-based learning is at the heart of graduate studies. Because it is a study that focuses on the pursuit of knowledge by the learners directly. is the development of the process of seeking knowledge and self-learning ability testing of learners. [7] proposed four research-based learning management models as follows:

1. Learning management using research processes Is to allow students to practice doing research at various levels, such as conducting experiments in science laboratories. Case study, project work, document research Doing a mini research (Baby Research), doing a thesis, etc.
2. Teaching by having students join a research project with a teacher or as an assistant in a research project (Under Study Concept). In this case, the instructor must prepare a research project to support it. To provide students with the opportunity to conduct research such as collecting data, analyze data However, there are disadvantages of this method as the students do not learn the entire research process.
3. Teaching by having students study research to learn knowledge Principles and theories used in research on that subject. How to set up a problem method for solving the problems, findings, and applying the results for further study. Make students understand the research process more.
4. Teaching using research results for teaching It is to let learners know that new knowledge theory How is your current science? It also builds trust in teachers and keeps teachers from getting bored of having to teach the same content every year.

IV. RESEARCH METHOD

Research on teaching-learning styles based on the concept of design thinking together with the concept of reflection on practice to promote competence to create innovation in educational management for students in the field of educational administration innovation. College of Management Innovation Rajamangala University of Technology Rattanakosin the research was conducted in two steps as follows:

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Step 1: Study on the content of the theoretical concept documents.

1.1 Study of related documents and research the researcher studied the documents and research related to the teaching and learning model based on the design thinking concept. together with the concept of reflection on practice to promote competence in order to create innovation in educational management for students in the field of educational management innovation, resources at this stage include documents, textbooks, articles, research papers, and electronic media both domestically and internationally. by analyzing and synthesizing and organized into categories

Step 2. Field Study

2.1 Interview with experts the researcher interviewed 7 experts on the issue of teaching-learning style based on the concept of design thinking. together with the concept of reflection on practice to promote competence To create innovation in educational management for students in the field of educational administration innovation.

2.2 A multi-case study of 3 model universities, the researcher studied multi-case studies (Multi-case Studies), a model university that received a Best practice award, educational management with a teaching and learning model based on the design thinking concept. together with the concept of reflection on practice from 2 universities and universities that use information technology and design thinking concepts together with the concept of reflection on the practice of 1 university

2.3 The researcher uses the results from the study of documents and related research on the teaching and learning model based on the concept of design thinking. together with the concept of reflection on practice to promote competence in creating innovation in educational management, students in the field of educational management innovation are synthesized to formulate strategies.

2.4 The researcher developed a teaching and learning model based on the concept of design thinking. together with the concept of reflection on practice to promote competence to create innovation in educational management for students in the field of educational administration innovation. by using expert group meeting techniques

Step 3 Key Informants

3.1 Interviews with expert's key informant Consisting of 7 qualified persons, obtained by selecting a specific (Purposive Sampling) as follows: Academics are those with a degree of not lower than a doctorate degree. Hold an academic position not lower than Associate Professor

3.2 Study the instructional model based on the design thinking concept from key informants in each school.

Consisting of 3 university administrators and 1 head of the academic administration group, selected by specific method

3.3 Development of teaching and learning models based on the concept of design thinking by using the Experts Group Meeting technique. The key informants consisted of 9 experts, obtained by selecting a specific method (Purposive Sampling), consisting of 1 academician, 1 educational administrator, 1 administrator of the institution. The study consisted of 3 people, a supervisor of 1 and a teacher of 3 people.

Step 4 Tools and methods used in the study

4.1 Interviews, research tools It is a semi-structured interview format.

4.2 Multiple Studies research tools It is a semi-structured interview format.

4.3 Experts Group Meeting Tools used in research It is a model for assessing the consistency and conformity with what needs to be measured, i.e. IOC (Index of Items Objectives Congruence), a teaching style strategy based on the concept of design thinking.

Step 5 Gathering Information

5.1 Interviews, data collection the researcher coordinated with experts to inquire about their willingness and willingness to provide information for research purposes.

5.2 Data Collection Coordinate with the school director to request cooperation in research.

5.3 Experts Group Meeting Data collection by Experts Group Meeting from 9 experts

Step 6 Data Analysis

6.1 Interviews, data analysis the researcher used the information obtained from interviews and documents. Let's analyze the content (Content Analysis) and categorize according to various issues. Then use the results obtained to create a conceptual framework of research.

6.2 Data analysis the researcher used the data obtained from a multi-case study of the model school that received the Best practice award to analyze the content and categorize it according to various issues. Using statistics is the frequency value.

6.3 Experts Group Meeting Data Analysis The researcher used the data obtained from the expert group meeting. and the results of the assessment of conformity with the directness of the strategy are summarized, analyzed content and categorized according to various issues. Using statistics is the frequency value. and the determination of the conformity index (Index of Items Objectives Congruence: IOC) [7]

Step 7 Summary of research results and presentation of research results.

From the results of the study to the teaching and learning model based on the concept of design thinking together with the concept of reflection on practice.

V. RESEARCH RESULTS

It can be seen that curiosity learning and learning in the 21st century of instructional model based on the concept of design thinking. together with the concept of reflection on practice to promote competence to create innovation in educational management for students in the field of educational administration innovation. The concepts and characteristics of learning management are similar, that is, there must be a relationship. There are sequential steps and processes. that learners can participate in teaching, such as defining problems that students are interested in group activities In order for learners to analyze and integrate with other subjects on their own, and effective teaching, teachers must have more qualifications than instructors. learning (Learning Coaching) and can act as a guide for students to travel to the world of learning (Learning Travel Agent), where the role of teachers from the past needs to change as we step into the 21st century of Teaching model based on the concept of design thinking together with the concept of reflection on practice to promote competence To create innovation in educational management for students in the field of educational administration innovation. Because teachers in the modern world need to be more knowledgeable than being a moderator of the subjects they teach. But the teacher has the role of raising the knowledge of the students. Build skills necessary for a career Including ICT has played a role in education and is part of the daily life of people around the world. ICT today is not only a source of information. Teachers need to think about how to integrate learning management into ICT. The characteristics of teachers in the 21st century, known as e-Teachers, consist of 9 characteristics that teachers should practice as follows:[2]

1. Experience is a new learning experience. Use tools such as Internet, e-Mail, CD use
2. Extended means having the ability to search for knowledge all the time because of internet technology. Available 24 hours a day, anywhere, use your free time to gain knowledge with technology.
3. Expanded is to expand the effect of that knowledge to students. The general public and the community can transfer their knowledge on CD, VDO, TV or on the Web in order to increase the knowledge that is useful to the personnel as a whole.
4. Exploration is to be able to choose up-to-date content. References Researching both information and entertainment to create creativity to be used for teaching and learning design

5. Evaluation is to be a good evaluator. can use technology to evaluate

6. End-User is a good end user such as being able to browse valuable web sites on the Internet and being a user of various technologies.

7. Enabler is able to use technology to create lessons and additional content to use in teaching. Can use software and hardware to create lessons. At the very least, it is possible to create content presentations with Power Point to motivate students to learn more, or to use authoring tools to create electronic lessons.

8. Engagement is teachers who work together to exchange ideas and find common ground to create a community, such as discussing on the Web, creating new ideas, having suggestions, creating a community of teachers on the Web.

9. Efficient and Effective is an efficient and effective teacher. Must be a fluent technology user, producer, distributor and knowledge user.[5]

Good education for the new generation and quality would have to completely change the learning style of a disciple. And the role of the teacher had to change completely. teacher who loves students pay attention to the disciple But still using the same teaching methods, it will not be a teacher who truly benefits the students. That is, a teacher who has a heart for his students is not enough. Teachers for students need to shift their focus or focus from teaching. to focus on learning (Both students and their own) must learn and improve the learning style that they provide for students as well. Teachers for students must change their roles from “teacher” to “coach” or “learning facilitator” (Learning Facilitator) and must learn skills in performing duties. this by joining together as a group to learn together in a systematic and continuous system called PLC (Professional Learning Community).[3]

VI. DISCUSS THE RESULTS OF THE RESEARCH.

Instructional model based on the concept of design thinking together with the concept of reflection on practice to promote competence in creating innovation in educational management of students in the field of educational administration innovation consistsstrategies. The results of the research appear as follows. may be due to Creation and development of teaching and learning models based on the concept of design thinking has undergone a process of development and improvement from several steps, including the study of documents Related research, concepts, theories, interviews with experts. multidisciplinary study and expert group meetings to get strategy Instructional model based on the concept of design thinking and indicators that are appropriate It can be used to effectively manage educational information and communication technologies for small

primary schools. In line with the results of the [7] research, it was found that through a multi-stage research process, including surveying the problems, Study of documents and research interview with expert's model school case study Expert Group Meeting This is the development of a strategy that creates a process of improvement and ensures that Strategies can be put to practical use. The results of the study consisted of issues that were discussed for each strategy as follows:

Instructional style strategy based on the concept of design thinking together with the concept of reflection on practice to promote competence In creating innovation in educational management for students in the field of educational administration innovation consists of: 1. Preparation of a plan to develop a system of teaching and learning models based on the concept of design thinking. together with the concept of reflection on practice to promote competence In creating innovation in educational management of students in the field of educational management innovation, in line with [4] studied the development of information and communication technology management strategies for school education. Under the Education Service Area Office Bangkok found that internal structure management strategies It consists of secondary strategies and activities such as strategies for system development and system administration to support the use of ICT for education. It is a clear internal structure. Activities include expedite all parts to prepare a management plan There is a system for continuous monitoring of ICT operations. Promote the use of ICT for communication within the school There is regular communication within the school regarding ICT policies. There is a system of budgeting according to the school's plan. Encourage the presence of ICT departments in schools and encourage ICT activities to support teaching and learning activities thoroughly.

VII. CONCLUDE

Instructional model based on the concept of design thinking together with the concept of reflection on practice to promote competence to create innovation in educational management for students in the field of educational administration innovation. It consists of teaching strategies based on design thinking concepts. together with the concept of reflection on practice to promote competence to create innovation in educational management for students in the field of educational administration innovation. It has gone through a process of development and improvement from several steps. thus, having confidence that the strategy Project/Activity and indicators that are appropriate It can be used to effectively manage information and communication technology for education for small primary schools.

Feedback

from research results the researcher has the following suggestions:

1. Recommendations from research

1. The results of the development of teaching-learning strategies based on the concept of design thinking together with the concept of reflection on practice to promote competence To create innovation in educational management for students in the field of educational administration innovation. College of Management Innovation Rajamangala University of Technology Rattanakosin is suitable It can be used to manage information and communication technology to be effective.

2. Suggestions for the next research

For the next research issue, research should be done on the issue of

1. Study the teaching style according to the concept of design thinking. together with the concept of reflection on practice to promote competence to create innovation in educational management of students in the field of educational management innovation, College of Management Innovation Rajamangala University of Technology Rattanakosin to the real practice

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A model for the development of vocational skills and informatics skills of SME entrepreneurs in the digital age 4.0 in Bangkok

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Abstract— This research paper aims to study the patterns of vocational skills development and information skills development of SME entrepreneurs. In the digital age 4.0 in Bangkok and 2) to develop a model for developing professional skills and information skills of SME entrepreneurs in the digital age 4.0 in Bangkok. Conducted research studies in a combination of qualitative research and quantitative research, with the sample group being SME entrepreneurs in the digital age. 4.0 in Bangkok, 400 people who analyzed the composition using multivariate statistics.

The results of the research showed that the analysis of the components was as follows: 1) Professional skills in SMEs in the digital age 4.0 including: 1. Occupation SME business 2. Business Operations in the Digital Age 4.0 3. Professional Value 4. Language 5. Management

2) Information Skills in the Digital Age, including 1. Ability to define types and scope of entrepreneurship. Career in the SME business in the digital age 2. Ability to access information pools effectively 3. Ability to conduct business using information systems in the SME business profession in the digital age 4. Ability to use information in business occupation SMEs in the digital age effectively to compare the harmonization between the model with the skill development model and the empirical data, the criteria for the harmonization of the model and the developed empirical data were harmonized with the empirical data corresponding to the analysis results. The harmonization index (GFI) is 1.000, the modified harmony index (AGFI) is 0.987, which is closer to 1, and the mean square root index (RMR) is equal to 0.02208 Which approaches the center

Keywords— professional skills in business occupation, skills in the SME business occupation in the digital age, information skills
they cannot be solved. or unable to request a loan from the institution financial and eventually had to liquidate the business because it could not bear the burden As a result of the impact of this economic crisis, many leading companies were hit by foreign investors.

I. INTRODUCTION

The severe economic crisis of 1997, Thailand's economy has continued to expand at a high level over the past decade as the economic structure of Thailand has changed dramatically, with the shift from agriculture to construction projects. To the industrial and service sector, such changes resulted in the emergence of small and medium enterprises (SMEs) so much that today, small and medium enterprises (SMEs) have become an important infrastructure of the Thai economy. And plays an important role in the development of the country and also stimulates the overall economic system in the country to grow small and medium-sized enterprises (SMEs) mainly in the real economy sector. The new medium and small (SMEs) must overcome various obstacles. There are quite a number of entrepreneurs who have encountered obstacles that some of

Acquired cheap business, most businesses that can sustain themselves until now are Small and Medium Enterprises (SMEs) [10]

Small and medium enterprises are an important component of the economy, accounting for approximately 99 percent of all businesses. Therefore, small and medium enterprises play an important role as the foundation for sustainable development. It is the main mechanism for rejuvenation and strengthening. Economic progress as well as a mechanism for solving poverty the data confirming the important role of Thailand's economy is employment generation, accounting for more than 77% of total employment, and the country's role in creating

average value-added by about 7%. 39 of the gross domestic product value and have direct export value accounted for more than 29% of the total export value of SMEs is important to the economy (Enterprise Promotion Office[9]

As Thailand has improved and developed vocational skills and information skills to be equivalent to professional skills and international information skills. Occupational skills and professional information skills, especially those taking the Certified Occupational and Information Skills test, must understand. Both occupational skills and information skills that are currently in force and those that will be applicable in the future. [5]Therefore, it is necessary for licensed occupational and IT skills test takers. In order to ensure that the performance of the examining occupational skills and information skills is acceptable to the service users and make users of occupational skills testers and information skills accredited Increased confidence in the Occupational Skills and Information Skills Examination for more realistic financial statements However, [1] occupational skills and information skills test takers are permitted. Qualifications, qualifications, and competence testing criteria are also required to meet the International Council on Vocational Skills and Information Skills. and according to international standards set forth in the International Education Standards for Professionals, Vocational Skills and Information Skills. In addition, in Thailand by the Vocational Skills and Information Skills Council under the Royal Patronage of His Majesty the King, which is the governing body for professionals in occupational skills and information skills in Thailand Also a member of the International Vocational and Information Skills Academic Council, [4] it is inevitable for professionals in occupational skills and information skills to not comply with the international standards set out in educational standards. Universal for professionals, career skills and information skills. Issued by the International Council on Vocational Skills and Information Skills There is a total of 8 issues that define the qualifications of a professional skilled person and professional information skill. [2]

In addition, the International Vocational and Information Skills Education Standards Board has continually developed and improved various International Vocational and Information Skills Education Standards with one goal of development and improvement. That is to say, defining the framework of occupational skills and professional information skills. to be integrated 1) Professional technical competency 2) professional skills and ethical values and professional attitudes to achieve the learning outcomes that all career skill and information technology professionals[3]

It can be seen that the aforementioned background, occupational skills and information skills testers of SME business professionals in the digital 4.0 era in Bangkok Must be developed and adapted, whether in the field of professional knowledge professional skills or professional values Quality information skills to increase the opportunity to compete with foreign countries. including treatment and protection Benefits that should be received as well as the promotion and professional development of vocational skills and information skills of SME business professionals in the digital 4.0 era in Bangkok, Thailand. international to focus on raising professional standards. By encouraging the use of international professional standards, it means that Thailand is pushed to apply standards that Absolutely consistent or close to international guidelines for this reason, the researcher is interested in studying the model of career skills development and information skills of SME entrepreneurs in the digital 4.0 era in Bangkok.

II. RESEARCH OBJECTIVES

- 1) Study the model of development of occupational skills and information skills of SME entrepreneurs in the digital 4.0 era in Bangkok.
- 2) To create a model for developing career skills and information skills for SME entrepreneurs in the digital 4.0 era in Bangkok

III. RESEARCH METHOD

A research study on the development model of career skills and information skills of SME entrepreneurs in the digital 4.0 era in Bangkok by conducting quantitative research as it is a method that helps to find answers and confirm the answers. Helping to make research results more reliable by following the steps to conduct the research.

Step 1: Study on the content of research theory documents. Documents and research related by studying preliminary data and reviewing relevant literature. to prepare in-depth interviews and questionnaires

Step 2. Population and sample selection by population Conducting a research study, a combination of qualitative research and quantitative research was conducted by a sample group of SME business professionals in the digital 4.0 era in Bangkok. The composition was analyzed using multivariate type statistics. Samples used in this study were determined using the Yamane formula at 95% confidence level and accepted a 5% sample selection error with a procedure for sizing and sampling. The total sample size of 335 people, but since this research uses questionnaires to collect data, the sample size was increased to 400 by calculating the sample size in proportion to the number of business professionals

SMEs in the Digital 4.0 era in Bangkok by stratified sampling method After that, a simple random sampling was performed within the Bangkok metropolitan area of SME business professionals in the digital era. 4.0 in Bangkok

Step 3: Quantitative Research For the quantitative research part, the researcher determined that the questionnaire was used by the survey in this section to survey the general information of the respondents. The nature of the questionnaire consists of part 1, general information of the respondents, consisting of 10 questions covering personal data of professional groups, occupational skills and information skills of SME business professionals in the digital 4.0 era in Bangkok such as Gender, age, work experience as a candidate for vocational skills and information skills of SME business careers in the digital 4.0 era in Bangkok, part 2, opinions on professional skills, professional skills of SME business careers in the digital 4.0 era. In Bangkok, there are 25 questions covering 10 skills, each with a score of 5. Levels according to the Likert Techniques Attitude Scale for Qualitative Research

Step 4: Qualitative Research The researcher's data was collected using the In-Depth Interview technique with an in-depth interview form. The researcher will conduct self-interviews with key informants in order to be able to add additional questions that should be asked if there are additional points of interest in addition to the structured questions. and note the interviewees' interviews for further analysis later. If necessary, an appointment will be made to conduct further interviews. Here are some things to gather from this in-depth interview: Required initial variables to affect the central variable This may be the same source variable as obtained from the literature review or other variables beyond that. Once the data has been collected The data will be processed by indexing the data. Make temporary conclusions, eliminate information, and then draw conclusions and prove conclusions.

Step 5: Data Analysis For this research, the data was analyzed with the following steps:

5.1 Preliminary data on samples and variables. Data were analyzed by distribution of frequency, percentage, mean, standard deviation, skewness, equilibrium and confidence of the observed variables, as well as checking the preliminary agreement in the analysis. analyzed by using SPSS program

5.2 Examine the conformity of the measurement model to confirm that the instrument created or developed is structured according to the defined components and that the observed variables in each group are It is a suitable indicator for a given latent variable. The confirmation factor analysis was used in the LISREL program.

5.3 Correlation between variables was analyzed using Pearson correlation

coefficient analysis and significance test with t-test to be used as data to verify the conformity of the correlation model. the next structure

5.4 Analysis of occupational skills development patterns and information skills of SME entrepreneurs in the digital 4.0 era in Bangkok by means of Maximum Likelihoods with the LISREL package program to compare the harmony between the developed model and the data. Empirical by criteria to check the coherence of the model with the empirical data. and to achieve harmony between the developed model and the empirical data.

IV. RESEARCH RESULTS

Objective 1) To study the model of development of occupational skills and information skills of SME entrepreneurs in the digital 4.0 era in Bangkok. The results showed that The composition analysis of the relationship of professional skills development of SME entrepreneurs in the digital 4.0 era in Bangkok has dependent variables which are classified into 2 aspects as follows: 1) professional skills, vocational skills and information skills in the digital age 2) skills Information technology in the digital age

Objective 2 to create a model for developing professional skills and information skills of SME entrepreneurs in the digital 4.0 era in Bangkok. Creating a blend of qualitative and quantitative research studies with the LISREL package. To compare the harmoniousness between the developed model and the empirical data, the criteria for checking the harmonization of the model with the developed empirical data are harmonious with the empirical data. This corresponds to the results of the analysis, the Harmony Index (GFI) was 1.000. The Adjusted Harmony Index (AGFI) was 0.9789. which is approaching 1 and the mean square root index of residual (RMR) is 0.02365, which is close to zero, which the research findings can be used to model the development of occupational skills and entrepreneurial information skills. business career SME in the digital age 4.0 in Bangkok

V. NEW KNOWLEDGE

Component 1: Occupational skills and information skills of SME entrepreneurs in the digital 4.0 era in Bangkok has 2 sub-components, namely sub-component 1, occupational skills and information skills, with details as follows: Understand the principles of vocational skills and information skills, and the process of arranging career skills and information skills and performing tasks of SME business professionals in the digital 4.0 era in Bangkok, based on the principles of occupational skills and information skills.

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Subcomponent 2: Knowledge, Occupational Skills and Information Skills The details are as follows. Knowledge of vocational and information skills systemization and active in developing professional knowledge and information skills. of SME business professionals in the Digital 4.0 era in Bangkok Component 2 on SME business careers in the digital 4.0 era in Bangkok has 2 sub-components, namely sub-element 1, solving problems in SME business careers, details are as follows: Able to solve SME business problems that arise and learn about the business that changes all the time. sub-element that 2 Marketing planning of SME business careers are as follows: Have knowledge about the marketing planning of SME business careers and have the ability to plan the marketing of SME business careers for customers.

Component 3: Professional Value Skills, Occupational Skills and Information Skills in the Digital Age has two sub-components: Subcomponent 1, Job Responsibilities, Occupational Skills and Information Skills are as follows: Have service capability, commitment to work for SME business professionals in the digital 4.0 era in Bangkok, ready to explain and be responsible for the results of their actions and to perform tasks that take into account the manners, professional skills and information skills of the operators. Engage in SME business in the digital 4.0 era in Bangkok Subcomponent 2: Occupational Skills Behavior and Information Skills The details are as follows. They express their thoughts and feelings openly and honestly. and behave in accordance with their thoughts and words and be able to perform their duties honestly in doing business and marketing planning in accordance with SME business professionals in the digital 4.0 era in Bangkok and behave according to the code of conduct

Component 4: Language skills in the digital age has one sub-component: Subcomponent 1: Language Proficiency, Occupational Skills and Information Skills of SMEs in the Digital Age 4.0 in Bangkok The details are as follows. Possessing the ability to use language to communicate professional information, occupational skills and information skills to people easily and negotiating language to reach professionally acceptable conclusions or agreements. The use of English to communicate in order to provide services to an increasing number of foreign customers nowadays.

Component 5: Career Skills Management Skills and Information Skills in the Digital Era has 1 sub-component, which is Subcomponent 1: Career Skills Management Planning and Information Skills of SMEs in the Digital Age 4.0 Industry Bangkok has the following details can plan the operation. To be within the planning framework and have the ability to work as a team. and have a human relationship to be able to get along with other people

Component 6 Classification Skills and the scope of information on occupational skills and information skills of SME business professionals in the digital 4.0 era in Bangkok. There is 1 sub-component, namely sub-component 1, classification of categories. and the scope of information on occupational skills and information skills of SME entrepreneurs in the digital 4.0 era in Bangkok the details are as follows. Be able to clearly define and describe the required vocational skills information and business information skills, and be able to properly classify and categorize and form reliable sources of occupational skills information and skills.

Component 7 Information Access Skills Occupational skills and information skills of SME entrepreneurs in the digital 4.0 era in Bangkok Effectively, there are 2 sub-components, namely sub-component 1, information search on occupational skills and information skills. The details are as follows. Able to formulate methods or strategies to effectively find professional skills information. Subcomponent 2 Access to Information Occupational skills and information skills of SME entrepreneurs in the digital 4.0 era in Bangkok the details are as follows. Able to use search techniques to gain appropriate access to the required career information and information skills. and have access to information on vocational skills and information skills. both in document and digital formats, and can also record and manage official information Occupational skills and information skills and information resources career skills and information skills

Component 8: Information Assessment Skills in Occupational Skills and Information Skills has one sub-component, namely Subcomponent 1, Information Assessment of Occupational Skills and Information Skills of SMEs in the Digital 4.0 Era in Bangkok. The details are as follows. Able to assess the quality and accuracy of the professional skills information gathered. And be able to assess the credibility of information resources, occupational skills and information skills of SME business professionals in the digital 4.0 era in Bangkok. and be able to analyze and summarize the main themes of information technology, occupational skills and information skills to create new ideas

Component 9 Skills in Information Technology, Occupational Skills and Information Skills with one sub-component, namely Subcomponent 1, Use of Information Technology, Occupational Skills and Information Skills of SME Business Owners in the Digital 4.0 Era in Bangkok the details are as follows. Able to apply information systems to create new works and understand ethics. Laws relating to information on professional skills in conducting SME business with quality

Component 10 Efficient Information Use Skills Occupational Skills and Information Skills There is one sub-component

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which is Component 1 Planning for the use of information in occupational skills and IT skills. The details are as follows. It can use existing and newly acquired vocational skills information and information skills to plan SME business marketing and generate new career information and information skills, and be able to comply with regulations, and ethics in accessing information professional skills of entrepreneurs with quality

VI. DISCUSS THE RESULTS OF THE RESEARCH.

The research findings on the development model of occupational skills and information skills of SME entrepreneurs in the digital 4.0 era in Bangkok have the following findings to be discussed:

The analysis of relationship components, occupational skills development and information technology skills, occupational skills and information skills of professionals, occupational skills and information skills in the digital era 4.0 in Bangkok area has dependent variables which are classified Information skills in the digital era include 1. The ability to determine the types and scope of information, occupational skills and information skills of SME business professionals in the digital 4.0 era in Bangkok 2. The ability to access information effectively Efficiency 3. The ability to assess information on occupational skills and information skills of SME entrepreneurs in the digital age 4.0 in Bangkok 4. The ability to use information on occupational skills and information skills of SMEs SME business professionals in the digital 4.0 era in Bangkok Efficiently consistent with research [8] for studies examining the role of social and technological challenges in achieving sustainable competitive advantage and sustainable business operations. To achieve this objective, data is gathered from Malaysian SMEs. The opinions of SMEs executive officers regarding the role of society and technological challenges in achieving sustainable competitive advantage and sustainable business performance were surveyed by email to gather information. Handing out a questionnaire of 400 A set of SMEs management staff. The questionnaire distribution was made using a simple random sampling method using a modeling equation structure. The results showed that social and technological challenges play a key role in promoting sustainable competitive advantage and Sustainable business operations for strategy placement is key to reflecting the positive role of social and technological factors in sustainable competitive advantage. The results of this study benefit practitioners and will help their strategies reflect sustainable competitive advantage and sustainable business performance [6], in line with SCONUL's information literacy standards. Named Seven Pillars Models, developed in 1999 and last updated in 2019, consist of 7 skills [7]

For the basis of the goal of the operation is to create professional skills and information skills of SME business professionals in the digital 4.0 era in Bangkok as a professional with The ability to work in accordance with established standards of marketing and to cooperate well in development throughout the professional career to implement and use it as a tool to increase the potential of Occupational skills and information skills of SME business professionals in the digital 4.0 era in Bangkok to have credibility in working with employers, customers, citizens, domestic and foreign investors. Professions and IT skills are competencies in the areas of professional knowledge, professional skills and values, which are described as follows: competences include professional knowledge, professional skills and values. The professional ethics and concepts necessary to demonstrate a competence to work are that competence is a characteristic of a person that enables a person to perform his or her duties whereas competence is a performance of practical performance. An indicator of a person's ability to perform well in the workplace. Competence includes satisfactory level of knowledge, specialized and professional skills of SME entrepreneurs in the digital 4.0 era in Bangkok, as well as practical skills in doing business. Knowledge competence and professional ethical values and ideas

Suggestions

1.1 Suggestions for utilization

- 1) The results of this research will be a guideline to lead to the preparation of SME entrepreneurs in the digital 4.0 era in Bangkok.
- 2) Be able to apply the model for developing professional skills and information skills of SME entrepreneurs in the digital 4.0 era in Bangkok to formulate strategies for doing business in both the public and private sectors and as a guideline in determining the direction for creating sustainable opportunity

1.2 Suggestions for further research

- 1) There should be an expansion of research results on topics related to the development model of occupational skills and information skills of SME entrepreneurs in the digital 4.0 era in Bangkok.

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Creation of innovations and technologies that affect the effectiveness of e-commerce entrepreneurs among Internet merchants

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Abstract— Creation of innovations and technologies that affect the effectiveness of e-commerce entrepreneurs among Internet merchants have the objective of 1) to study the factors of creating innovation and technology that affect the effectiveness of entrepreneurs. E-commerce business among Internet merchants 2) to study the marketing effectiveness of e-commerce entrepreneurs among Internet merchants; and 3) to study structural equation models, innovation and Technologies affecting the effectiveness of e-commerce entrepreneurs among Internet merchants, survey research methodology, quantitative research methods, e-commerce business groups among Internet merchants 400 The samples were analyzed for confirmation elements (CFA), structural equation analysis (SEM), consistency, empirical data. Chi-square value 176.197 / df = 147.0 / sig. = 0.051 / CMIN / df. = 1.199 / CFI = 0.975 / GFI = 0.931 / IFI = 0.992 / NFI = 0.992 / AGFI = 0.931 / RMSEA=0.020/RMR=0.008 All indexes are qualified. Model consistency was statistically significant.

The research found that the factors that positively influence the effectiveness of innovation and technology affecting the effectiveness of e-commerce entrepreneurs among Internet merchants group the highest. Is the technology innovation of e-commerce business, followed by Communication process, technology innovation, e-commerce business and technology decision-making process for factors that indirectly influence the marketing effectiveness of e-commerce businesses among Internet merchants, it was found that the influencing factor Through the spread of e-commerce technology innovation and the factors that indirectly influence the effectiveness of e-commerce entrepreneurs among Internet merchants through the diffusion of technological innovation of e-commerce businesses and From the decision-making process to use the highest technology innovation is the quality of this technological innovation system. The most direct influence on the spread of technological innovation of the e-commerce business is the technological innovation feature of the e-commerce entrepreneurs among Internet merchants and the factors that directly influence the technology innovation decision-making process in the technology innovation spread of the e-commerce business is the highest. Technological innovation features of e-commerce entrepreneurs among Internet merchants.

Keywords— innovation and technology, e-commerce business, Internet shopping

I. INTRODUCTION

Today is the digital technology world. The advancement of information technology is increasing rapidly. Internet networking and communication technologies have changed the way people live, conduct business and communicate. Today, with the increasing number of Internet users around the world, the Internet has become the largest source of

information sharing and exchange. In the world, causing the change of communication style from the traditional communication era to the use of communication technology in the digital era of the virtual world (Virtual World) has created the era of communication without borders. Life in both the real-world society and the virtual world society and has a more rapid communication.

From the advancement of the Internet, computer and communication technology, new social innovations are the

new social networks that are widely known as "Online Social Community) or "social networks" (Social This social network is a public space where members - people of all ages, races and religions, all educational levels, professions, and social groups from around the world - communicate or write content, stories, experiences, articles. Photos and videos that members have written and made themselves or found in other media. Then share with others who are in their network via the Internet and social media (Social Media). Social networks are growing rapidly and continuously. causing the technological evolution of various types of social media including Weblogs, also known as blogs, social networking sites such as Facebook, Twitter, Myspace, etc.

Social media marketing communication or online marketing plays a role in reaching more consumers and responding to customers immediately. Online marketing materials can also reach the target audience completely. Therefore, the success of online marketing has a very important role and importance as small and medium enterprises in large countries pay more attention to advertising, public relations and presentation of products and services through social media, for example. For example, via Facebook, Instagram fan page. and Twitter. In addition, social networks are often used as a meeting point for friends or acquaintances. Or even use it as a public space to share information with people in the community. The people in the community can do various activities. both for business studies and entertainment together [4]

At present, the Thai e-commerce business has a continuous growth trend. In 2017, the total value was approximately 2,812,592.03 million baht, or 9.86 percent, an increase from 2016. The proportions are divided by type as follows: 1) B2B e-commerce has a sales value. in the amount of 1,675,182.23 million baht, or 59.56%, an increase of 8.63%; 2) B2C e-commerce with a transaction value of 812,612.68 million baht, or 28.89 percent, an increase of 15.54%; and 3) B2G e-commerce with a sales value of 324,797.12 million. baht, representing 11.55%, an increase of 3.24%. It was found that the industries with the highest value were the retail and wholesale industry with a value of 869,618.40 million baht (30.92%), the second place, the accommodation industry, with a value of 658,131.15 million baht (23.40%), and the third industry was the accommodation industry with a value of 658,131.15 million baht (23.40%). Production, valued at 417,207.07 million baht (14.83%), 4th place, information and communication industry, valued at 404,208.00 million baht (14.37%), 5th place, transportation industry, valued at 104,904.28 million baht (3.73%), 6th place, art industry Entertainment and recreation, valued at 19,716.04 million baht (0.70%), ranked 7th in other service industries, valued at

11,280.33 million baht (0.43%), and 8th in insurance industry, valued at 2,729.65 million baht (0.10%). [6]

The key point of e-commerce business entrepreneurs in online marketing is reaching the desired target audience in order to link them to more product or service sales. Therefore, the strategy must understand the daily life style of the target audience and understand their habits, thoughts, activities of interest in order to find a connection point with the target audience. Attract the target audience to be interested in increasing sales by entrepreneurs should choose to apply social networks in online marketing. For products or services that have a target consumer group who regularly uses social networks and can be influenced by word of mouth. In addition, entrepreneurs also need to prepare personnel who can supervise and operate online community marketing, as well as choose the right social media marketing format and content. In addition, the effectiveness of social media usage should be monitored and assessed for the benefit of adjusting marketing strategies appropriately.

From the importance of technological innovation as mentioned above Therefore, the researcher is interested in studying technological innovations that affect the success of electronic commerce by focusing on the creation of innovations and technologies that affect the effectiveness of e-commerce operators in the group of internet merchants. For the results of the study, it will help encourage e-commerce entrepreneurs to see opportunities and take advantage of the e-Commerce market to adapt to modern marketing channels to reach more consumers. Including helping to generate revenue and increase sales of products and services as well as being useful in the effective management and development of e-commerce marketing promotion and distribution strategies among e-commerce business operators to consumers and for the benefit of strategic planning and the most efficient distribution of e-commerce which will affect the Thai economy as a whole as well as to increase the capability of Thai entrepreneurs to be ready to compete in the world market. digital age

II. RESEARCH OBJECTIVES

1. To study the factors of innovation and technology that affect the effectiveness of e-commerce operators in the group of internet merchants.
2. To study the success of electronic commerce, e-commerce business operators in the group of Internet commerce operators.
3. To study the structural equation modeling of technological innovations affecting the success of electronic commerce, e-commerce entrepreneurs in the group of Internet commerce entrepreneurs.

III. SCOPE OF RESEARCH

In this study, the researcher has determined the scope of research for technological innovations that affect the success of electronic commerce, e-commerce entrepreneurs in the group of internet trading operators as follows:

1. A study of the structural equation model of technological innovations affecting the success of electronic commerce, e-commerce business operators in the group of internet trading operators. is an exploratory research using quantitative research methods (Quantitative Method) The research tool was a questionnaire. (Questionnaire) The sample group was E-commerce business operators in the group of operators who sell products via the Internet, 600 samples.

2. The variables in this research consisted of

2.1 Independent variables have 2 variables as follows:

2.1.1 The characteristics of resources consist of 5 variables, namely, resources, development, support. technology and participation

2.1.2 Technology innovation management consists of 4 variables, namely policy, goal, action plan. and resource preparation

2.2 Common variables There are 2 variables as follows:

2.2.1 Trust in technological innovations consisted of 5 variables: personal experience trusts acceptable risk reliability and the response

2.2.2 Technology innovation management consists of 5 variables, namely, resource supervision. Resource Promotion knowledge innovation the sufficiency of resources and the readiness of personnel

2.3 Dependent variable is the success of e-commerce entrepreneurs in e-commerce in the group of online merchants. There are 5 variables, namely, return, customer base. market value utilization and evaluation.

IV. CONCEPTS, THEORIES AND RELATED RESEARCH

In this research, the researcher aims to study the structural equation modeling of technological innovations affecting the success of e-commerce, e-commerce operators in the group of online merchants. By integrating the ideas of [1] marketing strategy in the digital era is a transformation of marketing competitive strategy into relationship with corporate resources, which is a strategy that businesses use to accumulate resources. corporate value and related research in which [5] studied behavior and important factors from marketing communication towards product purchase of consumers from marketing communication in social media format. The importance of social media marketing communications is at a high level and consumer purchase of products from social media marketing communications. in the

understanding the average level of feelings and behaviors was the highest level of product purchase. Important factors from social media marketing communication are related to product purchase of consumers from social media marketing communication, perception stage and behavior stage both in the same direction and in Different directions. [8] has studied the strategies of marketing beauty products through digital trading channels and found that the online marketing mix is of the highest importance, namely sales channels, price, promotion. marketing Privacy Personal service and products the sub-factor with the highest average was the website's ease of use, ease of use, and speed of searching, choosing and ordering. hypothesis test results It was found that online marketing mix factors were related to the purchasing behavior of beauty products through digital channels is relatively low.

V. RESEARCH METHOD

The study of technological innovations affecting the success of electronic commerce, e-commerce entrepreneurs in the group of Internet commerce entrepreneurs was a survey research using quantitative research methods. (Quantitative Method) using descriptive research methodology and using questionnaires as a tool for collecting data. There are procedures and methods for conducting research as follows:

Population and sample

1. The research population is e-commerce operators in the group of internet merchants.

2. The sample size is determined from the number of e-commerce operators of 527,324, of which 158,197 e-commerce operators are registered in the Bangkok area, from the Ministry of Digital Economy and Society. year Therefore, the sample size was determined using the concept of calculating the sample size of Taro Yamane. In the event that the population studied at 95% confidence level and the tolerance of the error is not greater than 5%, use the formula. From the calculation of the sample size according to the Taro Yamane formula, the total number of samples was 398.99 or 399 samples, which considered the suitability of the samples used in this research. The researcher determined that the sample size was suitable for the AMOS data analysis by using the Structural Equation Model (SEM) technique, which the researcher used to determine the sample size according to [9] and Hair et al (2010) stated that the sample size should be 10 to 20 times the number of observed variables in the study. In this research, there were 24 observable variables (24 X 20 times equal to 480), thus increasing the sample size from 399 samples to 600 samples. which from the calculation results is the minimum sample size that can be used for Analyzing by using structural equation modeling (SEM) analysis techniques, therefore, but for the completeness and

completeness of the data of e-commerce entrepreneurs in the group of Internet merchants who have a large number of questionnaires distributed, a total of 600 samples were made.

3. Sampling The researcher uses a probability sampling method using the Simple Random Sampling method. The convenience of the researcher was mainly from the sample group who provided cooperation with information from e-commerce business operators in the group of Internet commerce operators in the Bangkok area. The total number of samples was 600 samples.

VI. EDUCATIONAL TOOLS

The tools used this time the closed-ended questionnaire consists of 3 parts:

Part 1 Questionnaire on personal characteristics factors, 6 items, consisting of gender, age, education level, type of business, average monthly income. and period of operation It is a closed-ended question with only one answer.

Part 2 Questionnaire on variables of technological innovation in e-commerce operations for e-commerce business operators in the group of internet trading operators consisted of Resource attributes Technology Innovation Management Trust in technological innovation technology innovation management It is a closed-ended question with only one answer. Using a Likert Scale with 5 different answer levels, 95 questions total.

The third part of the questionnaire about the success of electronic commerce entrepreneurs in the e-commerce business in the group of merchants selling products via the Internet consisted of: return, customer base market value utilization and evaluation, there are 25 questions, which are closed-ended questions with the respondents to choose only one answer. Using a Likert Scale with 5 levels of answers to choose from.

VII. DATA COLLECTION

1. Secondary data includes information from research and collection from document books. Technology innovation concept, technology innovation trust concept, strategic management component concept in strategy implementation, strategic management concept, strategic management process concept and related research.

2. Primary data is data from questionnaires answered by a sample group obtained from a specific random sample from a sample group or e-commerce business operators in the group of Internet commerce operators, sent in a total of 600 samples by the respondents to answer. questionnaires and collect questionnaires and code them After that, the data is imported into the computer for processing. by using a statistical program for research.

VIII. DATA ANALYSIS AND STATISTICS USED IN RESEARCH

1. Data analysis

1.1 Examine the researcher's data to verify the completeness and completeness of the questionnaire. and compile a questionnaire for use in coding by bringing the correct questionnaire already Let's enter the pre-defined code. for closed-ended queries open-ended questionnaire the researcher grouped the answers and counted the scores and entered the code.

1.2 Data processing the code is then saved to a file using a computer for processing. To calculate statistics using the program SPSS For Windows.

2. Statistics for data analysis consists of the following statistics:

2.1 Descriptive statistical analysis, i.e. frequency, percentage, arithmetic mean Standard deviation, range, minimum, maximum, variance, skewness, kurtosis.

2.2 Analysis using inferential statistics (Inferential Statistics) using statistics in the analysis consisting of confirmatory component analysis. (Confirmatory Factor Analysis (CFA) and Structural Equation Model: SEM) to check the harmony of the research model with the empirical data (Model Fit). Assessment of Model Fit). The indices used to check the coherence of the model with the empirical data consisted of Chi-Square, CMIN/df., CFI, GFI, IFI, NFI, AGFI, RMSEA and RMR indices. Model Harmony Verification Statistical data processing from ready-made computer programs.

IX. SUMMARY OF RESEARCH RESULTS

1. Results of general data analysis, most of the e-commerce business operators are female 67.50% and 37.50% male, aged between 31-40 years old 47.50%, followed by 46-50 years old, 35.5% and older. 50 years, 14.0%, educational level, Bachelor's degree, 66.25 percent, followed by 28.00 percent below bachelor's degree, 58.48% were retail entrepreneurs and 46.52% were wholesalers, with average monthly income between 50,000. – 100,000-baht, 35.85 percent, followed by income 100,001 – 150,000 baht, 26.45%, and income less than 50,000-baht, 13.40 percent, with a period of more than 5 years - 10 years, 46.50 percent, followed by less than 5 years. 28.25 percent, respectively.

2. The results of the analysis of e-commerce business operators had an average of 3.98 opinions on the characteristics of resource components, with the highest opinion on the development aspect with an average of 4.21, followed by the resource participation aspect. Technology and support, respectively. In the technology innovation management component, the opinions were at a high level with an average of 4.43, with the highest opinion on policy

having an average of 4.12, followed by goals on action plans and resource preparation. Technology innovation management elements have opinions. At a very high level, there is an average. 3.76 with the highest opinion on the readiness of personnel with an average of 3.87, followed by knowledge innovation. resource management Resource Promotion and the sufficiency of resources The Trust Element in Technology Innovation There is a very average level of opinion. 3.87 with the highest opinion on acceptable risk, with an average of 3.76, followed by reliability. Responsive reliability and personal experience Components of e-commerce success have an opinion at a high level with an average of 4.00 with the highest opinion on utilization. with an average of 4.05, followed by evaluation aspect market value, return, and customer base, respectively.

3. The results of the analysis of the statistical examination of the technological innovation model variables affecting the success of e-commerce business operators in the group of Internet trading operators. The underlying variables consisted of 2 variables, namely resource characteristics and Technology innovation management the common variables consisted of 2 variables, namely, trust in technology innovation and technology innovation management, variable according to the success of electronic commerce, e-commerce operators in the group of internet trading operators. The range is between 2.67 – 3.15, the minimum is 2.00 and the maximum is 5.00, the mean is between 3.86 – 4.21, which is a high level. The standard deviation (S.D.) ranged from 0.52 to 0.66, indicating that the data was distributed close to the mean. This is because the standard deviation is not more than 30% of the mean and the variance or square of the standard deviation to measure the distribution of the data is between 0.27 – 0.44 when considering the skewness. (Skewness) or asymmetry of the distribution as a whole, it was found that the distribution was skewed to the left. (negative skewness) indicates that the data for all variables scores above the mean. The skew values are between (-1.06) and (-0.27). Considering the kurtosis between (-0.36) and 1.66, the variable is considered to be distributed as a normal curve. The results of descriptive statistical analysis showed that the variables were reliable and suitable to be analyzed into the structural equation model, technological innovations affecting the success of e-commerce, e-commerce business operators. In the group of entrepreneurs who can sell products via the Internet.

4. The results of the structural equation analysis of technological innovation models affecting the success of electronic commerce, e-commerce operators in the group of Internet commerce operators examined the suitability and correctness of the e-commerce model. structure and adjust the

model to be perfect in order for the statistical values to be accepted by means of linking variables Modification Indices and checking the suitability and validity of the structural equation model by considering the regression coefficient weight between 0.89 – 0.96, the multiple correlation coefficient (R2) to Check the variance in conjunction with the indicators.

The results of the causal structural equation test analysis, the technological innovation model affecting the success of electronic commerce, e-commerce entrepreneurs in the group of Internet trading operators, independent variables, change leadership variables. motivation to work recognition of organizational support Work satisfaction and organizational commitment and dependent variables of e-commerce success of e-commerce business operators in the group of online merchants. by considering the regression coefficients of the independent variables in the form of standard scores. which is the decision coefficient that indicates the influence of the variable the statistical significance at 0.001 and the statistical significance at 0.05 were summarized as follows:

1. The characteristics of resources consist of 5 latent variables, namely, resources, development, support. technology and participation the regression coefficient was weighted between 0.94 – 0.97 and the multiple correlation coefficient (R2) of 86.0% - 91.0% percent. The test results showed that resource characteristics influenced the success of e-commerce, e-commerce entrepreneurs among entrepreneurs. online shopping for goods There were 4 direct influences and 5 indirect influences.

2. Technology innovation management consists of 4 latent variables. In terms of policy, goals, action plans, and resource preparation, the regression coefficients were weighted between 0.85–0.95, and the multiple correlation coefficient (R2) was 83.0% - 91.0%. on the success of e-commerce, e-commerce operators in the group of internet trading operators who have direct influence There are 3 aspects and there are 3 indirect influences.

3. Trust in technology innovation consists of 5 latent variables: personal experience trusts acceptable risk reliability and the response the regression coefficients were weighted between 0.84 – 0.93, and the multiple correlation coefficient (R2) was 84.0% - 94.0%. The test results showed that trust in technology innovations influenced the success of e-commerce, e-commerce operators in the group. Traders selling products via the Internet. There were two direct influences and one indirect influence.

4. Technology innovation management consists of 5 latent variables: personal experience resource management Resource Promotion knowledge innovation the sufficiency of resources and the readiness of personnel the regression

coefficients were weighted between 0.47 – 0.94 and the multiple correlation coefficient (R²) was 41.0% - 94.0%. The results showed that technology innovation management had an influence on the success of electronic commerce, e-commerce operators in the group of entrepreneurs. Engage in trading products via the Internet. has a direct influence on one side.

5. The success of electronic commerce, e-commerce business operators in the group of Internet trading operators are sent as dependent variables, consisting of 5 latent variables, namely, return, customer base. market value utilization and evaluation the regression coefficient was weighted between 0.64 – 0.96 and the multiple correlation coefficient (R²) was 49.0% - 98.0%.

The results of the analysis of the influence of the causal structural equation, the technological innovation model affecting the success of e-commerce business operators in the group of Internet commerce entrepreneurs revealed that the factors affecting the success of e-commerce operators among the highest e-commerce operators are resource attributes. have the most positive influence the total influence coefficient was 0.79, followed by technological innovation management with the total influence coefficient. 0.65 Trust in Technology Innovation Total Influence Coefficient 0.43 and technology innovation management total influence coefficient 0.24, with 94.0% explaining the influence of change. In addition,[7] the research also found that the factor in technology innovation that affects technology innovation management the most is technology innovation management. Total influence coefficient 0.76 followed by resource characteristics. The total influence coefficient of 0.65 and the trust in technology innovation The total influence coefficient of 0.35 describes the influence of change by 74.0%, and the technology innovation factor that most affects the trust in technology innovation is the management of technology innovation. Total influence coefficient 0.56 followed by resource characteristics. The total coefficient of influence 0.36 describes the influence on the percent change. 74.0% and resource characteristics have a positive influence on the management of technological innovation. The total influence coefficient of 0.86 explains the influence on the change by 68.0%, which from the analysis results summed up the hypothesis testing of technological innovations affecting the success of electronic commerce, e-commerce operators in the online shopping merchants' group. Internet.

X. DISCUSS THE RESULTS

From the research results, the structural equations, technological innovation models that affect the success of electronic commerce, e-commerce operators in the Internet

trading operators' group were consistent with the empirical data with statistically significant results. The influence of technology innovation model affecting the success of electronic commerce, e-commerce entrepreneurs in the group of internet merchants found that the factors affecting the success of electronic commerce, e-commerce entrepreneurs in the group of entrepreneurs the highest delivery of online product trading is Resource attributes the highest positive influence, followed by technology innovation management. Trust in technology innovation and technology innovation management, research results are in line with the concept of [10] said that marketing strategy in the digital era is a transformation of marketing competitive strategy into relationship with corporate resources, which is a strategy that businesses use to accumulate valuable organizational resources. The research also found that the factors of technological innovation that had the greatest effect on technology innovation management is the management of technological innovation, followed by resource characteristics. and trust in technological innovation This is in line with the [12] which studies technology innovation and service quality that affect the decision to choose a mobile phone service provider in Bangkok. It was found that technology innovation and quality Service affecting the decision to choose a mobile phone service provider in Bangkok is the innovation of observing technology. service quality Trust.

In addition, the most important factor in technology innovation that affects the trust in technology innovation is technology innovation management, followed by technology innovation. Resource attributes and resource attributes have a positive influence on technology innovation management, consistent with the concept of [13] that innovation is a new idea or practice that is completely or partially changed from the previous practice. What has been done in order to be used to improve the efficiency of various operations and resource attributes have a positive influence on the success of electronic commerce, e-commerce operators among Internet commerce operators, through trust, technological innovation and technological innovation management, resource attributes have a positive influence. On the success of e-commerce, e-commerce operators in the Internet commerce group through technology innovation management and through technology innovation management in the field of technology innovation management have a positive influence on the success of e-commerce. Electronic commerce, e-commerce business operators in the group of operators selling products via the Internet. through trust, technological innovation and technological innovation management. In line with the concept of [11] said that managing an innovative

organization by applying skills, knowledge and creativity is an important tool of management with the goal of creating added value for Product organization, including the aspect of improving operational and production efficiency. And trust, technological innovation has a positive influence on the success of e-commerce operators, e-commerce operators among Internet commerce operators. Through the management of technological innovations in line with the concept of [10] who said that organizational innovation is the nature of an organization that has successfully applied new changes and spread until it became an order. practices for the general public that lead to the good effectiveness of the organization.

SUGGESTIONS

Suggestions for this research

1. According to research results, technology innovation management has a positive influence on the success of e-commerce entrepreneurs in e-commerce operators among Internet commerce entrepreneurs. Therefore, there should be a clear direction, objectives, goals and strategies that can develop the organization. To be an organization of technological innovation, as well as to manage the organizational structure that can stimulate and cause technological innovation within the organization, especially the organizational structure that has the appropriate level of flexibility to stimulate to create technological innovations within the organization

Suggestions for the next research

1. There should be a study of the sample group classified by the e-commerce business operators in each industry to acknowledge the technological innovations that affect the success of e-commerce. different environment

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Risk factors affecting cargo damage in road transportation

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Abstract— The cargo damage is the last thing that consignee wants to think about when they transport the goods from one location to another. If the cargo is damaged the loss is not only the goods, but company also wasting the money, time, and resource to manage the damaged goods and company need to work with insurance company to get the loss back and take times to manage. It is better to know and control the risks before it happens. Authors focus on the risk factors that related to risk assessment of road transportation. The purpose of this literature review was to identify risk factors that affecting safety of cargo in the road transportation. This research was conducted through qualitative research methods that focus on documentary analysis. The data were collected from 12 article from sources of research publication. According to the content analysis, authors will categorize into unsafe act and unsafe condition and author will analyze the risk factors according to the review. Therefore, based on synthesis and extraction factors, we discover the risk factors that could be further developed as a tool for assessing the cargo insurance in road transportation

Keywords— Cargo damage, Road transportation, Transportation, Risk, Transportation risk, Land transportation, Cargo damage factors, Risk assessment

I. INTRODUCTION

The land transportation is a major mode of transport in Thailand. As estimated, for more than 80% of the total domestic transport is carried out by road. And with the evolution of the Asian Economic Community (AEC), Thailand's position as a transportation hub for the Greater Mekong Sub-region (GMS) has been strengthened. This plan has increased the country's opportunities for cross-border trades and import-export shipments. And the most major mode of transportation is road transportation [14]

Supply chain risks are the outcome of uncertain events that prevent the supply chain from achieving its performance [1] especially the cargo during transportation. To win the competition, domestic logistics company must identify the risks pertaining to their services among the neighboring countries and find avenues to manage the risks. The more logistics company can identify the risk, the more opportunity that they can prevent the risk before it occurs. There are a lot of processes that logistics company need to manage when the cargo damaged during transportation. The first disadvantage is the customer service, the logistics company will have the bad reputation from this situation. Moreover, customer will

lose their trust on the service of logistics company. After that logistics company will waste their time and resources to dealing with insurance company to get the money back. Moreover, if the cargo is the dangerous cargo, it could affect the people's health and the environment.

The aim of the paper is to perform a review and consolidate the risk factors that affecting cargo damage in road transportation from literature review to identify and categorized including analyze the risk factors what could be the important risk that logistics company need to consider when they transport cargo by road transportation.

II. RESEARCH OBJECTIVES

The purpose of this paper is to review literature then identify the risk factors that affecting safety of cargo in the road transportation. A secondary purpose was to categorized risk factors to be easier to analyze and understand.

III. LITERATURE REVIEW

Risk assessment

The concept of risk and risk assessments has an exceedingly long history. More than 2400 years ago the Athenians offered

their capacity of assessing risk before making decisions (Bernstein, 1996) [15]

Risk assessment has an important role in safety-critical industries. However, it faces a series of overall challenges, partially related to technology advancements and the needs also increasing. There is currently a request for continuous risk assessment, improvement in learning past lessons and definition of techniques to process relevant data, which are to be coupled with adequate capability to deal with unexpected events and provide the right support to enable risk management [16]

In the road transportation, some of the risks that affect cargo damage can include impatience of drivers, impatience of road users, fatigue, vehicle bad condition, children playing on the road, over speeding, taking drugs and driving, poorly maintained road, poor health condition, climatic change, traffic congestion, drinking and driving, using a mobile phone while driving, using mobile phone while driving and over speeding [17]

Unsafe Act and Unsafe Condition

Heinrich Domino theory of accident causation

According to statistics on accident's reports Heinrich deduced that 88 percent of accidents are due to unsafe act of workers, 10 percent due to unsafe conditions and 2 percent of all accidents are associated with act of God such as natural disasters. According to his analysis Heinrich defined accident as 'an unplanned and uncontrolled event in which the action or reaction of an object, substance, person, or radiation results in personal injury or the probability thereof'. described the accidents causation theory, man and machine relationship, frequency and severity relation, unsafe acts reasons, management role in accident prevention, costs of accidents and the impact of safety on efficiency [13]

Multiple causation model (Petersen, 1971; Non-Domino-based model)

The Heinrich domino theory is structured on theory that an accident is caused by a single cause. Petersen (1971) developed a model based on management system rather than individual Petersen believed that there are two major features of the events which leading to an accident, namely an unsafe act and an unsafe condition.

Therefore, there are more than single cause which contribute or lead to both unsafe act and unsafe condition and finally occurrence of an accident. Unlike simplified theory of domino, there are causes and sub-causes when an accident happens. Through identification of these multiple contributing causes of accident, the unsafe acts and unsafe conditions should be prevented from arising [13]

IV. RESEARCH METHODS

A non-systematic search of available published literature was undertaken. Articles and reports identified were predominately published from 2017-2021, from relevant conferences and journals, and from organizations/ associations within the road safety field (with some occasional exceptions)

The records were searched according to the following key:

1. The phrase "cargo", "goods", "damage", "risk" appearing anywhere in the body of the article.

The search was limited to the years 2017-2021 to be able to concentrate the most recent research trends.

From the selection, the following articles have been removed:

1. Copies of the same articles which appeared in different databases.

2. Articles in which the use of the phrase "cargo", "goods", "damage", "risk" was accidental (not connected with the subject).

3. Articles in sea and air transportation

V. RESEARCH RESULTS

TABLE 1. Unsafe Act and Unsafe Condition Risks

	Title	Year	Author	Risk factors	Unsafe act	Unsafe condition
[1]	Integrated approach to information analysis for planning the transport of sensitive cargo	2019	Semenov, I., Filin-Danilowicz, I., & Trujarski, P.	Road condition, Route		✓
[2]	Research on Safety Risk of Dangerous Chemicals Road Transportation Based on Dynamic Fault Tree and Bayesian Network Hybrid Method	2017	Xiao-Ping, H., & Wei-Dan, S.	People, Vehicles, Environment and Goods	✓	✓
[3]	Risk and costs evaluation in intermodal transport - variant analysis of using cargo positioning and parameters monitoring systems	2017	Lorenz, A., & Kuban, M.	Mechanical cargo damage, Cargo theft, Truck theft, Loss of property, Delay in transport, Cargo loss, Prolonged storage, Refusal to loading		✓
[4]	Cargo Securing During Transport Depending on the Type of a Road	2017	Vlkovský, M., Števík, M., & Michálek, J.	Type of a Road		✓
[5]	Problems and risk management options for the transport of dangerous goods	2017	Barabukova, V., & Mincevski, I.	The amount and type of dangerous goods 1. Characteristics of the designated transport route (accident areas, residential areas, weather and climate); 2. Alternative traffic routes; 3. The number of incidents on the route for a certain period of time; 4. The location and composition of the rescue services on the route.		✓
[6]	SAFETY TRANSPORTATION OF GOODS IN THE SUPPLY CHAIN OF CONTEMPORARY UKRAINE: RISK MANAGEMENT AND MEANS OF LOADING SAFETY	2018	Yankovska, L., & Petyk, I.	1. Managerial risk such as the documentation 2. Technical risks 3. Unplanned risk such as theft of goods; risk of an accident; natural disasters 4. Commercial risk - failure of supply; lack of production; violation of delivery terms. 5. Unpredictability related risk - the risk of cargo delay during transportation; the risk of delaying the unloading of the tanker. 6. Entrepreneurial risk - change of contractual conditions by the customer of transportation; liquidation of the enterprise. 7. Depreciation risk - rapid physical wear of transport and equipment; outdated transport and equipment. 8. Financial risk - the risk of inflation; fluctuations in exchange rates.		✓

	Title	Year	Author	Risk factors	Unsafe act	Unsafe condition
[7]	Essential Safety Factors for the Transport of Dangerous Goods by Road: A Case Study of Lithuania	2020	Batarfiene, N.	<p>Group I: factors that have the greatest impact on accident occurrence.</p> <ol style="list-style-type: none"> 1. A-Driver fatigue 2. B-incorrect loading of cargo 3. C-Lack of driver knowledge 4. D-Weather conditions and pavement condition 5. E-Route planning 6. F-Delivery speed 7. G-Vehicle technical condition 8. H-Driver confidence in vehicle security systems 9. I-Secondary occupation of the driver 10. J-Time of day <p>Group II: Technical/technological factors to be assessed before shipment.</p> <ol style="list-style-type: none"> 1. A-Ensuring security controls during cargo transportation 2. B-Marking of the transport vehicle 3. C-Tightness of vehicle semi-trailer/container/bank 	✓	✓
				<ol style="list-style-type: none"> 4. D-Vehicle technical condition 5. E-Provision of additional safety equipment for the vehicle 6. F-Infrastructure of the place of loading and unloading of the cargo 7. G-Chemical properties of the cargo 8. H-Preparation of dangerous goods packaging 9. I-Correct loading or filling of the cargo 10. J-Possible transshipment/transport of dangerous goods <p>Group III: organizational factors to consider before shipment of dangerous goods</p> <ol style="list-style-type: none"> 1. A-The necessity of escorting the cargo being carried 2. B-Time of day for the transport of dangerous goods 3. C-Qualification of drivers 4. D-Risks associated with the carriage of goods 5. E-Linkage with emergency services 6. F-Route selection 7. G-Freight delivery distance 8. H-Information identifying the chemical properties of the cargo being carried 9. I-Exact arrival at the place of loading/unloading at the specified time J-Speed limit 	✓	✓
[8]	Essential techniques for fastening loads in road transport	2021	Macioszek, E.	Improper arrangement and securing of the transported load	✓	
[9]	Managing in-country transportation risks in humanitarian supply chains by logistics service providers: insights from the 2015 Nepal earthquake	2017	Baharvand, H., Comes, T., & Lamm, M.	<p>Delivery delays Due to inappropriate weather conditions, traffic density, and infrastructure breakdowns</p> <p>Loss of cargo Due to accidents, landslides</p> <p>Insufficient capacity Due to lack of transportation availability, capacity, and labor</p> <p>Cargo decay/damage Due to inappropriate transportation</p> <p>Market fluctuations Due to price increase in disaster settings</p> <p>Unreliable information Due to infrastructure breakdown, lack of sources, lack of technology use</p> <p>Unethical behaviors Due to lack of</p>	✓	✓
[10]	Cargo Securing – Comparison of Different Quality Roads	2019	Vilovnik, M., & Vesel, P.	Road quality		✓
[11]	The Evaluation of the Selected Risk Types in External Transport with the Use of the Matrix Method	2019	Niekamk, M., & Kubilinska-Jabonka, E.	Personal risk, ecological risk, environmental risk	✓	✓
[12]	Transport Infrastructure performance and management in the South Island of New Zealand, during the first 109 days following the 2016 m.w. 7.8 “Kaikōura” earthquake	2017	Davies, A. J., Sudariva, V., Aghababaei, M., Barnhill, D., Costello, S. H., Fanslow, B., ... & Wotherspoon, L. M.	Road condition		✓

TABLE 1. show the risk factors that was identified from researchers, author group the risk factors into two main group which is unsafe act and unsafe condition according to the theory of Heinrich [13]

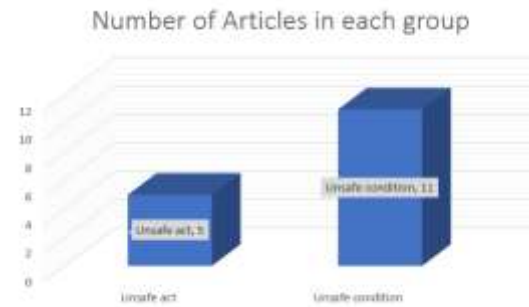


Figure 1. Number of Articles in each group
Figure 1. there are 5 Articles that mentioned about the unsafe act factors and there are 11 articles that focus on the unsafe condition

VI. DISCUSSION

After grouping the risk factors into two group which is the unsafe act and unsafe condition. Author found the main factors in each group as follow.

1. Unsafe Act risks

Authors divided the unsafe act risks into two main risk factors which is the driver behavior and loading worker behavior **A.Driver behavior risk** is the main key factors that led to cargo damage. Most of the researcher point out the risk that come from driver. B. Xiao-ping and S. Wei-Hua studied on the person factors which concerning with driving skills, health status and safety awareness [2] Moreover, the safety of the transported cargo depends not only on the people, but also depends on the actions of the driver in the event of an accident and his/her own skills [7] found seven transportations risks during Nepal response. They are delivery delays; insufficient capacity; market fluctuation; loss of cargo; cargo decay/damage; unreliable information; and unethical behaviors [9] Lack of knowledge or failure to follow occupational health and safety rules and regulations [11] **B.Loading worker behavior risk** is also important in the cargo transportation. Proper cargo loading plays a particularly important role in the transport of goods. If the load is improperly transported, it may be damaged [8] Damage to goods caused by improper protection of transported cargo [11]

2. Unsafe condition risks

Authors divided the unsafe act risks into four main risk factors which is technical risks, Infrastructure risk, Natural disaster risk and unpredicted event risk. **A.Technical risk** technical risk can come from the vehicle condition and the loading equipment condition [7] that are not in good condition. This risk could lead to the road accident

and the accident at work which is not only affect to the cargo condition but also the driver's life and loading worker's life

B. Infrastructure risk infrastructure risk mainly link to the road condition or road quality [4,10] because the condition of road can affect to the movement of the cargo in the truck. Moreover, the route of transportation [1] or route selection is important for logistics company to design the transportation route because logistics company should select the safest way to transport their cargo.

C. Natural disaster risk natural disaster risk can happen from a bad weather condition [5] and natural disasters [6] such as earthquake [12] this risk can lead to poor visual performance while transportation and could lead to the road accident which surely affect to the cargo condition

D. Unpredicted event risk unpredicted event risk can happen from Thief risks which directly affect the cargo loss and cargo damage from robber activity [3]

VII. CONCLUSION

After review the articles that mentioned the risk factors that affecting the cargo damage, authors categorized into two main factors which are driver behavior risk and loading worker behavior risk, these two main factors are under Unsafe Act and four main factors which are technical risk, Infrastructure risk, Natural disaster risk and unpredicted event risk under Unsafe Condition. Five Articles mentioned about unsafe act and eleven Articles mentioned about unsafe condition.

According to literature review, most of the researchers focus on the unsafe condition. The risks under unsafe condition could be a serious threat of cargo condition in road transportation.

For the future research, researcher should focus more on the risks that come from unsafe act because it is the risks that logistics company can control more than the unsafe condition risk which exceedingly difficult to control. The preventive action plan to prevent the unsafe act risks could be the advantage for logistics company.

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Creative space design strategy in arts and community culture to promote cultural tourism in Phitsanulok province: SPACE-TID-PHITSANULOK

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Abstract— This research aims to 1) study community ways, lifestyle, wisdom, culture and art in Phitsanulok and 2) create a body of knowledge for creating creative activities in the arts and culture of the community. A design process based on community engagement and co-cultural ownership had been adopted with a focus on cultural tourism benefits. The research area was in Muang district, Phitsanulok province. The research was carried out in 2 stages: 1) Study community ways, lifestyle, wisdom, culture and arts in Phitsanulok. Data were collected by observation, interviewing, and analyzing descriptive data by focusing on cultural blended community areas such as Thai-Chinese, Thai-Christian and Thai-Muslim ways. 2) Create a body of knowledge for the creation of an artistic and community cultural activity space through a design process based on community engagement and co-cultural owners with a focus on cultural tourism benefits. Target communities were selected, namely Ratchaphruek Community, Wiset Chai Chan Community, Wisut Kasat Community and Samakeerodfai Community; community process, focus group and in-depth interviews with the target community; finding the identity of the area from the opinions and needs of the community; perceptions from people outside the area and working together to find ways to create an activity area; conducting analysis, synthesis and building theories of design for the community and interviews with community and community leaders. However, it was found that the lifestyles of the 4 communities were beneficial to each other, despite different cultures. Therefore, community development must be developed in order to achieve mutual learning of culture and showed the inheritance of a way of living together without dividing the activity area. The community's weakness and strengths were then analyzed using SWOT Analysis techniques and a strategy was drawn to be used in designing creative areas.

The research results showed that 1) community way, lifestyle, wisdom and culture in Phitsanulok through the perception of tourists visiting Phitsanulok showing the city with a long history, the sacred Buddha image, the birthplace of King Naresuan, spent 1-3 hours in Phitsanulok as it was a pass and a stopover, the goal of the trip is other provinces such as Sukhothai, Phetchabun and Phayao, intention to pay homage to Phra Buddha Chinnarat and not knowing the unique lifestyle of Phitsanulok. The study found that Phitsanulok had an area that combines cultures and communities with unique historical and cultural traditions. There were different cultures divided into 3 groups: Thai-Muslim, Thai-Chinese, and Thai-Christian. There was a community plan to analyze the problems and related factors of the community. There were 6 factors contributing to the integration of Thai-Chinese, Thai-Christian and Thai-Muslim cultures: geographic, occupation, technology, common use of public property, politics, government and education. There were 3 aspects of cultural integration: consumption, language, and dress.

2) The body of knowledge to create a creative activity area in the arts and culture of the community would use a design process based on participation with the community and the owners of the co-culture. Cultural tourism benefits were focused on 3 missions, 3 strategic areas, and 3 objectives along with the preparation of 8 strategies and 8 indicators from the development of patterns of strategy application in the arts and cultural areas. The researcher obtained a model from the synthesis of basic information and local stakeholders, hence the name "SPACE - TID - PHITSANULOK", which had 8 components to create an activity area and used as a guideline to promote cultural tourism in Phitsanulok province

Keywords— Community Way, Creative Space Design Strategy, Community Engagement, Cultural Tourism, Phitsanulok, Ratchaphruek Community, Samakeerodfai Community, Wisut Kasat Community, Wiset Chai Chan Community

I. INTRODUCTION

Phitsanulok is former the ancient town of Khmer Kingdom with the original name as called Song Khwae City that was settled down between two rivers: namely, Nan River and Khwae Noi river. Moreover, it had been the important city from Khmer Kingdom's period to be combined with Si Satchanalai City ruled by Phraya Khamhang Phraram. Later, In Sukhothai period King Ramkhamhaeng seized Song Khwae City until it had flourished the city in Lithai period again. Similarly, according to the cultural arts, religion and archaeological sites of Phitsanulok City in Ayuttaya period it seemed to be the golden age after being established as the capital city with the importance on battle or the border city. Then, Phitsanulok City in Ayuttaya period was seem to be the golden age because it was established as the capital city with the importance on battle or being the front city to battle for making the consciousness for salvage independence including of gaining the importance on politics and governance as the economics city, religions and arts cultures. With this case, it becomes to be the center of Nan river basin and the resources of Ayuttaya age with the trade routes between states. However, according to the next period of Thonburi it had the war until being moved the city, but at that time Phitsanulok City was still the capital city and the northern city until the World War II for being exploded of the city to be collapsed. Then, Phitsanulok city has been altered during the times due to the immigration of the people groups with several ages [1].

Nowadays, Phitsanulok city has been changed with times as being the center for politics, governance, economics, social, education, arts cultures, communication, soldiers and tourism located at the low north area. Then, it is accounted as the secondary city to make the route through the large city between regions according to the background of the immigration history of the populations. With this case, it affected for Phitsanulok city to be the gathering areas with varieties of cultures as the social combination to become as the spirit city under the varieties of cultures and the area conditions of Phitsanulok province. Thus, it is becoming as the historical story city with ancient places and several tourist attractions in cultures, natural resources and different life styles with immigration races for the people in the past. Thus, according to the community characteristics it is involving with the gathering for the people groups in the areas or any territory, so the members in the communities have the relationships to each other from the social ways with the mental cares on habitat areas and the activity center with the benefits from the participation [2].

According to the questionnaire of tourists and people in the area for doing the activities in tourist attractions with interviewing, it has seen from the involving people that Phitsanulok city is the passing one to connect with the main provinces from the North

area. However, the people can't absorb and touch with the cultural stories, ancient places or community life styles consisting of stories and historical locations with remaining of arts cultures in communities as the inheriting life styles. As the result, in current day it still lacks of the presentation for these stories including of activity spaces to reflect of stories or areas for placing with the visitors to touch and learn the stories of Phitsanulok city, [3].

As the result, it affected to the city area of Phitsanulok province to be unpopular to visit for doing religion activities, such as monk paying respect, making merit or working to study in the area or the scope with consisting of the important historical and cultural characteristics by telling about the past stories because in nowadays the community life style of Phitsanulok people is involving with the stories of arts cultures and traditions to be brought in the community area as the different way, except for remaining as the changing times.

According to the potential analysis, economics, social, tourism, natural resources and environments and stability of the development plan in Phitsanulok province of 2018–202 [4]. Thus, it can make analysis from troubles and people requirements through the community of people in local areas with emphasizing on the important development that is involving with the provincial development to be the service center areas and the low north areas. Thus, according to the vision of Phitsanulok province as Service City in Intersection of Indochina it represented that in current situation it still has the requirements on the development in Phitsanulok province as the Service City of Indochina Intersection or the provincial group center, such as the fields of education, communication, tourism, health and academic by focusing on the future international standard. Then, nowadays Phitsanulok province has the potential with readiness to make investment including of supporting of natural resource with historical development. Moreover, in this province it has many tourist attractions no matter of plenty historical sources, tourist attractions, cultural attractions and natural resources.

According to the above issues, the researcher has realized that the study of history, arts cultures and community life styles in areas can search for the cultural identity to create creative activity areas including of transferring to arts works and cultures and presenting of community life style stories from the past until nowadays. With this case, it can inherit of cultures to the juveniles in communities and transfer for the local cultures to the different people with cultures and visitors. Therefore, the researcher has the requirements to use the designing strategies with building knowledge and creative designing procedure in areas including of combining with the community participation patterns in areas for the owners of cultures, and it can focus on the presenting for various activity patterns, such as learning

with across cultures, creating for community activities to be transferred with skills, build arts works with many patterns emphasizing on experience creation, atmosphere building and presenting of area stories. With this case, it is including with the model creation for arts space activity and cultures to aid the people in communities to broadcast and conserve the cultures until becoming as the new identity of the City.

II. RESEARCH OBJECTIVES

The objectives of this research article were 1) To study the community ways, lifestyles, intellects, cultures and arts works in Phitsanulok City 2) To build knowledge for making the creative activities areas with community cultures based on the community participation procedure and the owners of cultures with the advantages for cultural tourism community.

III. LITERATURE REVIEW

According to the designing strategy for arts spaces and community cultures with promoting cultural tourism for Phitsanulok province, the researcher has studied for the concept ideas and relevant theories consist of theory study and concept idea for community restoration. In addition, according to the study of Mr. Panya Thepsing and Mr. Thongpon Promsaka Na Sakonnakorn in 2013, [5] it is involving with the economic field to make community strength, the social field to realize for community base and search for community costs with human life styles from history origins and cultural arts in each community and the service mind field to let people working in society increasingly with the city restoration. In addition, according to the study of Mr. Traiphop Buntham in 2013, [6] it is involving with the dimension of creative city design that is to make restoration for the city, and many areas are decorated with the creative ideas, especially for the new arts and cultural creation to the building pattern for applying. However, the city spaces are unable to use with the surface in arts creation and the community culture concept idea. According to the concept idea of Mrs. Chatthip Nadsupha in 1996, [7] it used the issues and the consciousness to help each other, and the gathering in groups is willing for studying their history origins to have consciousness increasingly while the participation procedure is capable to restore and create the community identity for being proud with the power to push up the development. Similarly, according to the development in dimension of culture from Mr. Anand Kanchanaphanin 1995, [8] it represented that the culture procedure refers to the learning movement, creation, new production and adaptation for people in local community under the social and natural environment contexts with varieties in each community. On the other hand, with the alteration all the times the community

has been searching and acquiring for the various development directions to survive in different cultures, and it is depending on other culture principles referring to the reflection of community potential development. With this case, according to the concept idea of community participation with the principle of Mrs. Somlakkana Chaisert in 2006, [9] it represented to the perception, attitude, representation, interaction, purpose, appraisal, Onward-doing and Network by studying on designing strategy, concept idea of identity searching through the symbol system. In this case, it has studied with designing strategy, the concept idea of identity search through symbol system as the components of emotions and outside world procedure relevant with us. In addition, according to the concept idea of Mr. Nattana Prasannam in 2007 [10] and through the symbolic systems of representation with positions including of the principle of Mr. Hall, 1997 claimed in the research of Mr. Chirat Suphakarn, 2002 [11] to apply with: 1. Communication Systems and Languages 2) Body Languages and Dressing Styles 3) Food and Consuming Habits 4. Times and Awareness 5) Compensation and Greeting 6) Relationships 7) Values and Norms 8) Feeling of one's own and Distances 9) Mental Development and Learning and 10) Beliefs and Attitudes.

With this case, it is conforming to the learning method of Mrs. Sirinad Phinthongphan in 2003 [12] including of the concept idea of Mr. Pongthep Worakitphokhatorn in 1994 [13] with the Image Design, Multiple Image, Current Image and Wish Image.

According to the designing concept idea of creative area and the improvement of liveliness to communities with the concept idea of Ministry of Community, Aboriginal and Woman's Services, 2006, it refers from Mr. Poramin Watcharinrat in 2006 [14] with the relevant attributions for the development in many fields, such as designing of public areas, arts arrangement in public areas, conservation of heritages and the concept idea of usability areas and community activities. Then, according to the concept idea of Mr. Poramin Watcharinrat in 2006 it can make summary as the guidelines of combining activities: 1. Determining for positions or areas of community people to do activities together regularly 2. Improving the center area to be the small public place for people in communities surrounding with facilities, such as stores and restaurants to increase the potential in area for the public areas: 1) Being the activity center for people in communities 2) Relaxing places and social activity locations and cultures for people in communities including with the cultural exchanging support between communities 3) Representing to identity and histories of the community based on the concept idea of Spirit of Place to specify of meaning and memory.

It's involving with the arts concept idea, the creative thoughts, the creative beauty ideas and the creative ideas.

According to the concept idea of communication design with the guideline of Mrs. Nopparat Maneerat in. 2008,[15] it is involving with interactive media creation that is to combine the media components in system consisting of fonts, slides, motion pictures, sounds and videos through the procedure to send for the users and conduct with the relative meanings or the responding medias to contribute to the result.

According to the design of community attraction with the concept idea of Mrs. Natthaphat Maneeroj in 2017, [16]it represented to the tools of community development, life quality development and community economics. Then, the tourists can learn with cultures, traditions, community life styles for people in communities as following:1. Attraction, Traditions and Community Life Styles2. Tourist Attraction Activities to gain the participation experiences3. Community Organizations and Owners of Intellects or Setting up for Data Bases of Intellect Teachers, Village Sages or Experts in many fields, such as locations, cultures, traditions and occupations4. Community Participation that the community members should have participation in tourism management by thinking, planning, taking responsibility, taking assessment and joining in benefits as the acknowledgement procedure 5. Sustainable Management 6. Learning Creation 7. Life Quality Development and Economics of Community that the tourism should make the benefits to communities, such as increasing the tourism incomes in communities with the souvenir incomes in tourism from home stores.

IV. RESEARCH METHODS

This research is the quality one with the two steps method for research objectives:

First step: Survey research for studying community ways, lifestyles, intellects, cultures and arts works in Phitsanulok City

1.1 It has gathered data from group sampling by surveying opinions with questionnaires from tourists for one hundred and fifty people to receive the information of reason in tourism of Phitsanulok City with the perception of tourist attractions in Phitsanulok City.

1.2 It has used for the questionnaire with Unstructured Interview for six tourism academicians by studying information to receive the depth data of tourism in Phitsanulok City including of tourism views in community ways from Mueang District of Phitsanulok City with the important area information, opinions, and supportive guidelines to do the project research.

1.3 It has studied information by determining with the target areas, and the researcher has studied with Secondary data of

political history, establishment, immigration, community ways and arts cultures including of physical and social attributions, field data survey with lifestyles, cultural and community way contexts to become as the identity perception and area identity with open-ended questions from five people.

1.4 It has managed to be available for the targeted area by interviewing from the informants with **Snowball Sampling Technique** or the leaders that are the community representatives, and the researcher has made the conclusion about the targeted area relevant to the roles of lifestyles in Mueang District of Phitsanulok province by interviewing from representatives and Focus group with seven people.

According to the second step, it can build the knowledge for making the creative activities areas with community cultures by using the community participation procedure and the owners of cultures with the advantages for cultural tourism community from data analysis in the first step or the selection of four targeted communities, such as Rajapruek Community, Wisetchaichan Community, Wisutkasat Community and Rodfaisamakkee Community with the collection of depth data as these details:

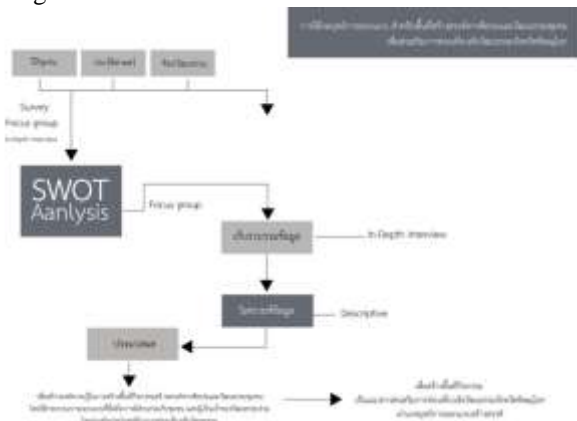
2.1 The researcher has surveyed to make the community group conversation and depth interview with the targeted community group to talk basically with the community leaders including of finding the self-awareness and the space identity, and it gained with the additional opinions and the community requirements, the acknowledgement from outside people and searching for understanding with community to represent of identity.

2.2 According to the community leader group interview and the basic communities, it can search for the good features and community requirements from the different creative development, and it was found the important issue from beneficial four community lifestyles, except with cultures. Then, it has the community development to contribute to the co-learning of cultures and inheriting lifestyles in the same activities areas prior to analyze with the weaknesses and the strengths of communities including of objectives, strategies and measurements to be collected by the researcher with meeting note.

2.3 According to the questionnaire, it is relatively to the people in the areas with the designing knowledge or working with arts and designing totals of fifteen people including with the questionnaire of relevant people in the area of Phitsanulok City totals of one hundred and sixty-nine people to gain opinions, views and guidelines in the creative areas.

2.4 According to the researcher in the surveying area, it can be classified into three groups with the role of lifestyles that are Thai-Chinese, Thai-Muslim and Thai-Christian for making the focus group and in-depth interview with the targeted

community group from talking to the basic community leaders to gain the acknowledgement of identity and find the space identity from opinions, additional community requirements, acknowledgement from outside people in areas and joining to find the guidelines of making activities areas including of making analysis and synthesis with creating designing theory for targeted communities.



Using local design strategies to create arts and culture of the community to promote cultural tourism in Phitsanulok Province
 Way of life – history – art and culture
 Data Collection – Data Analysis – Processing
 -To create a body of knowledge in the area of creative activities in the field of arts and culture of the community by using the process of participation of the community and co-culture owners with a focus on the benefits of cultural tourism.
 -To create activities as a guideline to promote cultural tourism in Phitsanulok province through creative design strategies.

Figure 1: Operation procedure

Source: Prattana Sirisan

V. RESEARCH RESULTS

According to the result of community life styles, living, intellects, cultures and arts works in Phitsanulok province, it was found that the historical characteristics of urban community in Phitsanulok province are involving with the history of urban people movement as the ancient city with the longest period since Sukhothai age called as Songkhaew City with the importance on economics because it has the selling on boats as the main ways.

According to the community history in Phitsanulok province, it was found the history of people to settle down in City communities as being the ancient city with the long history from Sukhothai period called as Songkhaew City. Moreover, it has the importance on economic as being the trade route on

water with the main way, and the immigration people had been worked before World War II, such as Chinese, Burmese, Laos, Mon and Yuan people by becoming as the cultural integration of religions that are Thai-Chinese people, Christian people and Islam people since the beginning of Rattanakosin period. Then, it is including of the immigration in many ages until the Northern train building; thus, it can make the confirmation about the expanding system of the City for the people to enter in Phitsanulok province for trading. In this case, it is involving with the expanding of City from both of the West and the East sides for Nan River. Therefore, nowadays the life styles of people in Phitsanulok province and the life styles of cultures in City can be combined with each group to live with their own life style. What's more, the main tourist attractions of the City are temples and ancient places with the historical traces; then, when viewing for the life styles of Phitsanulok people they still spend their life with the combined cultures that is the interesting historical traces and the adjusting of combined cultures for City communities of Phitsanulok province beneficially to the life style of the people in the current age with the people adaptation. As the result, it can be seen as the temples, the shrines, the mosques and the Christian churches as the connecting areas resulting in the life styles for the people in this area are involving with the circle of combined cultures.

However, in current day it showed that each race of people still maintains their own culture identity to be outstanding including of conserving their own cultures and bringing other cultures to be combined.

According to the interview, it was found that the life style of Phitsanulok people from the past until nowadays is involving with the city of immigration periods for people and the varieties of cultures, traditions and religions including of the city building and the communities, histories and special attributions for combined culture life styles and the selected communities. In this case, the researcher has classified for the three powerful race groups in these neighborhoods that are Thai-Chinese, Thai-Muslim and Thai-Christian with the varieties of cultures with races, except for the harmony lifestyles to express with the arts cultures on different nationalities. However, they still live together in society by helping, adapting and accepting for their cultures, such as in the fresh markets in Street Food, the roads, the schools, the hotels, the community public parks, the official offices and the food markets.



Figure 2: Phitsanulok Municipality Map

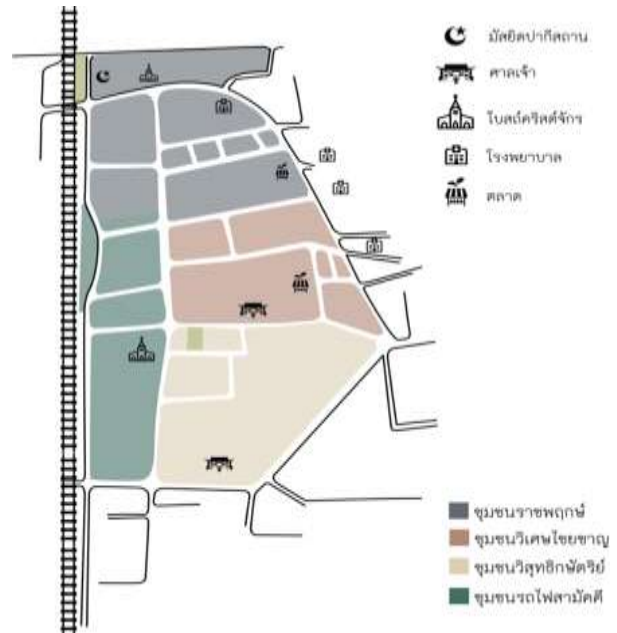
Source: Phitsanulok Municipality

According to neighborhoods of combined cultures, the researcher has surveyed the areas from gathering the field data in Sub-District area of Phitsanulok City consisting of 64 communities. Then, it can determine with the targeted area of community neighborhoods with combined cultures of several religions and the life styles to use the four activity areas that are Rachaprek community, Wisatechaichan community, Wisutkasat community and Rodfaisamakkee community as the specific identity of religion or the habitat areas as the economics communication neighborhoods in Phitsanulok City.



Figure 3: Phitsanulok municipality map (Non 2) with target area in red frame.

Source: Phitsanulok Municipality



Pakistani mosques, shrines, churches, hospitals, markets
Ratchaphruek Community, Wiset Chai Chan Community,
Wisut Kasat Community, Rodfaisamakkee Community

Figure 4: Map of target areas in 4 communities

Source: Prattana Sirisan

Nearhoods of Thai-Chinese People

In the community area of Thai-Chinese people, it showed that the researcher has determined the area called as Chaochean Nairai with settling down and doing agriculture occupations and gardening since before the World War II. Besides, since A.D.1957 the City had been renovated to be called as the economic area with the city expanding in Phitsanulok city, and nowadays it is called as Wisatechaichan neighborhood area with the population numbers approximately for one thousand and four hundred with thirty-three people from five hundred with sixty-five houses as being the communication car routes entering to many Sub-Districts.

According to the characteristics of the area called as Khokmathum neighbourhood area or Municipal market 4 as being the modern cement building for the Thai-Chinese people to trade, such as rice shops, gold shops, Nham factories, salt factories, original noodle shops and Thai orchestra team as the religion place to be respected of that is Guan Yu Shrine as being the trade neighborhood areas of the community. Therefore, according to the life styles in current day they are classified into the fourth generation and the fifth generation or the parent groups and the co-worker groups to open the shops and the real estate businesses as well as one child to rent the building from parents and the another two children to work differently in the government service and the workplace as the doctor. Then, the last one can enter in good

society for taking caring of the parents with earning of the government benefits and the third generation or the grandparents with entering to the club for talking with each other in the coffee shops of the neighborhoods, (Phreeyanumat Chanbunchong,30 October2019 by interviewing.



U-Thong Hotel-fermentedpork factory - Salt Factory - Phiphat Band
 Minibus station - Kok Matum Market-Guan Yu Shrine-Hakka Association-Aiyara Hotel
 Wisut Kasat Road - Wisut Kasat Soi 1 - U Thong Road - Wiset Chai Chan Road - Surongkhadecha Road - Wiset Chaichan Community

Figure 5: Map of Wiset Chai Chan Community Area and Main Area

Source: Prattana Sirisan



economic role because it connects to the upper north with the central region, thus making it a trading market for both land and sea products.

Destination - Khok Matum Market- Guan Yu Shrine - Highway District

Thai-Chinese groups that live in this area trade and are currently classified in the 4th and 5th generations, i.e. parents and teenagers working in trades such as shops and real estate. They have buildings for rent that are inherited from the family. Some of them are in government service like doctors for reasons of socialization, caring for parents in times of illness, and welfare. The 3rd generation is the grandparent's generation. This group of people has a lifestyle of meeting and chatting at coffee shops in the community.

Figure 6: The lifestyle of the Thai-Chinese group in the community

Source: Prattana Sirisan



Thai-Chinese arts and culture
 Art – motifs and architecture in the shrine grounds
 Attire – wearing festive clothes such as Chinese New Year, weddings, funerals
 Music – Lion Dance, Chinese Opera, Ritual, Tai Chi
 Community products - salt, fermented pork, noodles, rice noodles, fish sauce

Figure 7:Arts and culture of Thai-Chinese people in the community

Source: Prattana Sirisan

Neighborhood of Thai-Muslim People

According to the immigration since A.D.1934, it is involving with the trade and before the World War II that the people was brought into Phitsanuok City, so it resulted in some Shi'a Muslims, Bangladesh people and some Pakistan people to be back to the country while some of them have reserved the area for settling down and making trade. In addition, in the past it had the main occupations, such as butter trade, cow milk trade, cattle milk trade and goat milk trade with the school establishment to teach religion that is Manunwittaya school that in nowadays it has opened after the city burning situation and the political condition with the new restoration. Then, it

The way of life of Thai-Chinese communities The history of the community

Thai people of Chinese descent in the farm consist of Hakka and Teochew Chinese descent. In the past, the area was settled by Thai-Chinese people as this area was close to the location of the Japanese military base in World War II. Most of the Chinese groups in the farm work as hawkers and deliver food and fruit supplies to the Japanese. Phitsanuok plays an

has the immigration for the Muslim people increasing with several households for reserving the area and purchasing from the millionaires of the city, and in nowadays it has approximately for two hundred and fifty houses of the Muslim people in Phitsanulok communities, (Astsaree Seekachan, 20 September, 2019 by interviewing. With this case, they still use for animal raising as the main commuting way with Islam food selling to the government and private teachers called Ban Khaek Intersection as being the main City communication routecrossing to the railway station. Additionally, it affected to the Muslim life styles relevant to the people in Phitsanulok area and Muslim people life styles emphasizing on the religion; however, it still has the limitations such as dressing styles, food and music to use with rhymes tool and only single voice singers. What's more, according to the specific arts culture and traditions it is depending on the activities empathizing on religions and sports events, and according to the Muslim arts it is believed that the drawing of imitating pictures or the god representatives can't be made, and the arts pattern of Muslim people shows of the beauty as being seen in the line pattern, the geometric pattern and the human invention, such as fonts that isn't created by the god. However, it can be seen from the container lines, carpets, Mosque walls or in the Bibles. Then, the life styles of Muslim people in this current age at Phitsanulok area are performed as the normal way by studying with the common study apart from religion learning. With this case, it is involving with the religion study by gathering in the big pray every Fridays at the mosques in the main road that the people have passed by while the Muslim people still walk in the walkway at their communities normally as same as the well-known Islam food that the common people have been waiting to buy continuously, and in this Muslim neighborhood area it is the area for doing religion ceremony for opening with the outside people to enter for studying at the Mosque. What's more, it is locate in the center of the city and closely to the Christian church at Rachaprek community area. As the result, apart from the life styles of Muslim people and Christian people there are the restaurants, the buildings and the Thai-Chinese hotels to be opened across Rachaprek community area with the population numbers approximately for six hundred and eighty people in three hundred and fifty houses, and most of Rachaprek communities are in Thai-Muslim neighborhood areas that immigrated as the groups closely to the religious place from the past; nowadays there are Muslim people living in this area approximately for two hundred and fifty households apart from Thai people, Thai-Chinese people and Thai-Christian people.

According to the good feature in the neighborhood area, it is involving with the food neighborhood area with the collection

of several races for selecting to purchase or try from the evening to the night with the center area that is Rachaprek market with having the park in front of the mosque.



Figure 8: Map of Ratchaphruek Community Area and Important Points

Source: Prattana Sirisan



Thai-Muslim art and culture

- Art - geometric lines and man-made objects such as letters, containers, tapestries, mosque walls or scriptures.
- Music- Rhythm and solo vocals only
- Dress - Muslim women dress in hijab. Muslim men must not wear or imitate women's clothing. Women must not wear or imitate men's clothing. This is to maintain one's personality and gender identity.
- Food - Islamic food must have a Halal mark.

Figure 9: Arts and culture of Thai-Muslims in the community

Source: Prattana Sirisan

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This community has the long period more than other communities with the evidence of settling down for Catholic people since the end of Ayuttaya period, and the large center is located near the temples and the mosques in Phitsanulok province with the Christian school located in the center as the main route of the City. Then, the lifestyle of Christian people is to do activities together on Sundays for making the wish and paying respect to the god. Besides, there are the important activity days, such as Christmas day, Mother day, Father day, Valentine's day, Thank Giving Day, New Year Day or Church Decoration Day for giving the gifts. On the same way, according to the arts or tradition patterns in the main city it has decorated as the international ceremony, such as color mirror decoration, arts with god stories while for the tradition pattern it is involving with the Tribble church from the outside differently with the ceremony of traditions with the singing activities and the performance to be popularly for joining together, (Phetcharayut Saelee, 22 September 2019 by interviewing) with the gathering of Christian people in Phitsanulok City with varieties of races, such as the races of Mong, Burmese, Thai, Chinese and others with the daily life method, such as Phitsanulok people.

East City or being the Thai neighborhood area of Buddhist people and Catholic people, and it has the ice factory as the large mall with the train club as the community center to do activities. In addition, it becomes as the main route for the visitors in Phitsanulok city, and for another community of Catholic neighborhood area it has the temples and the old Catholic schools with the original name as Ratnakbunnikolao School to be setup since A.D.1930 with the continuity from school war condition. Furthermore, it was rented for Chinese teaching for twenty years before opening again with the name of Saint Nicolas consisting of the first French principal and Chinese teacher to open for common subjects, Chinese subject, Thai subject and Catholic religion, and nowadays it has for Thai teachers, Chinese teachers, Muslim teachers to teach here.



Wisut Kasat Road - Surongkhadecha Road - Soi Wisut Kasat 6-Soi Wisut Kasat 7-Phai Ku Intersection - Wisut Kasat Community
Church of St. Nicholas-Double Dragon Brand Mishuo Factory-Lao Yonghua Brand Fish Sauce Factory- Office of Highway No.5 Phitsanulok - Phitsanulok Highway District 1- Shrine – Rong Jay Leng Keng Tung

Figure 10: Wisutkasat Community Area Map and Important Points

Source: Prattana Sirisan

According to the area of Rodfaisamakkee community, it is located near Thammabucha road with the train railway of the



Thamma Bucha Road - U Thong Road - Ramesuan Road - Wisut Kasat Road
Community Train Unity
Church of St. Nicholas, of St. Nicholas school, ice factory, District Inspection Department, Phitsanulok Railway Club

Figure 11: Map of the Railroad Community Area and Important Points

Source: Prattana Sirisan



Thai-Christian way of life

History

The Catholic area is known as Phitsanulok Faith Community. In the past, this area was the center of missionary work in the northern region from the Ayutthaya period to the early Rattanakosin period by the foreign missionaries of Paris who assigned Father Lano to take charge of this work.

Destination-Catholic Temple School

People in the community engage in various occupations such as trading, working in the railway bureau and collecting car rental deposits. There is also a civil servant's house, a general's house, and a house of various railway inspectors. There are volunteer members of the community as caretakers. Community savings, loan and dividend funds have been established. There are a community drinking water plant, as well as a park, tennis court, sports ground, and a train club for joint activities. On Songkran Day, the elderly in the community are invited to pour water for blessings according to Thai traditions every year. Children's Day events include gift-giving activities for children as the community has descendants of railway and school workers.

Community integration is promoted through community broadcasters.

Figure 12: Lifestyle of Thai-Christians in the community

Source: Prattana Sirisan



Arts and culture of Thai-Christians

Art – motifs and architecture, catholic temples, community products

Music – Singing for religious ceremonies

Costume – Only Saints and Priests

Religion – Teochew people are Buddhist, Hakka people are Christian, Railway officers and Thai people

Figure 13: Arts and culture of Thai-Christians in the community

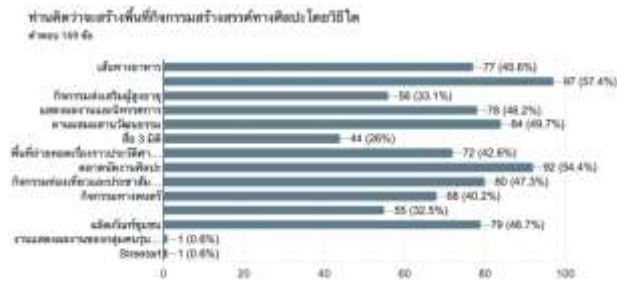
Source: Prattana Sirisan

According to the study from basic information, it is involving with the objectives for the researcher, and it has seen that this community has the interest with the varieties of life styles for Phitsanulok City in cultures as race characteristics to be in harmony by expressing as the arts cultures from their own races. However, it is still relevant to the life style in society by relying on each other, giving good benefits to lives with good adaption and accepting for their cultures. Then, according to the outstanding life styles for each neighborhood with the good relationship to the close areas for living together, it is relating with the locations, such as fresh markets, street food shops, roads, schools, hotels, community public place, official areas and food markets.

According to the last research, it has made the in-depth interviewed from the leaders of community and the basic community. Then, it is involving with the opinions on their acknowledgement and the community requirements to develop with different creative works. However, according to the four community life styles it is beneficial to each other, except for different cultures with the requirements to community development to gain the co-learning of cultures and life styles on living at the undivided activity spaces. For example, it has allocated for the communication system to make convenience including of the street food routes to combine with cultures in community markets to be known including of the street area management to be beautiful with elder people support activities. In this case, it can manage for the community activity spaces and create the good features for the tourists or the outside people to join in the activities inside the communities, and for this neighborhood area it is the historical area for transferring the Thai-Chinese stories, the Chinese-Christian people and the Thai-Muslim people to gain the good incomes for the community.

According to the analysis of usability in communities and the requirement guidelines to create the arts activity spaces and community cultures, it was found that it has used the designing procedure with the community participation and the owner of co-culture to focus on the benefits of the cultural tourism. Thus, the researcher should search for the guidelines to survey from the outside people in the communities living in

Phitsanulok City or another group of stakeholders for one hundred and sixty-nine people with agreement of creative activity space creation from arts and community cultures according to the question subjects of the guidelines from the community requirements to express opinions from gathering result:



How do you think you can create an artistic activity area?
 169 answers
 Food route
 Activities to promote the elderly
 Exhibition
 Activity area in the form of cultural mix
 3D media
 Historical storytelling area
 Art market
 Musical activity
 Community products
 Exhibition of young people's works
 Street art

Figure 14: Comments on creating artistic activities
Source: Prattana Sirisan

According to the opinions of the cultural tourism support to communities in Phitsanulok province, it represented that most agreed people with one hundred and twenty-one people with seventy-one point six percentages from all respondents.

Most people had the opinions that it must adjust for the landscapes, lanes, Soi, Public gardens, community sports courtyards with ninety-seven people or with fifty-seven point four percentages following with the arts market creation for ninety-two people or with fifty-five point four percentages. Besides, it is following by the courtyard with combined cultures for eighty-four people or with forty-nine point seven percentages, tourism activities and public relations with eighty people for forty-seven point three, community products with seventy-nine people for forty-six point seven percentages, the demonstration of works and exhibitions for seventy-eight people or with forty-six point two percentages, food maps for seventy-seven people with forty-five point six percentages.

What's more, it is involving with the community history space with seventy-two people with forty-two point six, musical

activities with sixty-eight people with sixty-eight people or for forty point two percentages. Thus, it should have the elder people supporting activities for fifty-six people with thirty-three point one percentages, the supporting activities or the advising to community sages with fifty-five people with thirty-two point five percentages, three dimension media with forty-four people or twenty-six percentages by having other guidelines that are the demonstration of the new generation from a student with oh point six percentage and the street art creation for one person with oh point six percentage from all respondents in the surveys.

According to the opinion survey of the respondents, it is involving with the recommendations to be gathered as this following:

Phitsanulok City has the long history with the arts to be the supporting guideline to conserve the traditions by transferring the thoughts for showing of stories, arts values and local cultures that are seem disappeared by leveling up and make mental relaxation. Besides, it is including with the arts activities to develop thoughts, emotions and new creation for our human in excellent level under the contexts of moral and cultural of Thai society including of making inspiration to be the cultural expression for the community into public areas to be the demonstration space by gathering of all arts works. With this case, it has created for this activity space that may remain on the tiny stories with the sustainable community participation, especially for the common space to be easily available or expressed as the identity of space to represent of the people identity to be interested and easily memorized. Therefore, it has the varieties of activity to be setup classifying into the community identity, arts demonstration shows, arts crafts and arts activities congruently to the community life styles in Phitsanulok communities. With this case, it used the culture stories of present age combining with presentation and availability to many groups of people, such as food cultures from the present age and local food activities of Phitsanulok people.

According to the opinion exchange activity, it showed that every gender should have the participation in the arts area including of arts learning activities for children arts and arts work contest. Then, it is involving with the setting up of demonstration area show with receiving the prizes, and the arts shows are performing regularly with the availability to common people easily including of the permanent arts works from the selling markets and the changing hands for the products in communities with the interest for use the arts procedure with modern and interesting development. As the result, it has setup at the sports areas for the new generation groups for supporting with the local arts clearly, especially for applying with arts cultures, life styles, local food, drawing

pictures and beauty Thai architecture to be applied in current age.

According to the conclusion of the important characteristics for the targeted goal, it is involving with the depth interview of the community leader group and the basic community. Then, it was found that the opinions of acknowledgement and the community requirements to develop the creative works were differently. However, according to the four community life styles it is beneficial to each other, except for the different cultures with the requirements to develop the communities to gain the co-learning for cultures with the life styles in the undivided activity spaces, such as allocating for communication system to give convenience in street food shop routes and community activity management. Thus, it can make the good features to the tourists or outside people for doing activities inside the communities because inside the neighborhood area there are the historical areas to transfer for the life styles of Chinese people and Chinese-Christian people to know for Thai-Muslim people with affecting to the incomes creation to the communities.

According to the analysis of usability in communities with requirement guidelines to make the arts space activity with community cultures, it is depending on the designing procedure of community participation and the owners of the cultures by focusing on cultural tourism benefits. Then, the researcher has searched for the guidelines to survey with the outside people in communities living in Phitsanulok City or another group of stakeholders for 169 people. With this case, it showed of the agreed people to make the arts activity space with community cultures in each community with the different historical story contexts and importance. Thus, according to the data analysis it can be the guideline to build the knowledge for arts and cultural activity space based on the designing procedure with the community participation and the owners of cultures by focusing on the benefits of cultural tourism with the interview from the leader groups of communities and the basic communities. Then, the good features and the community requirements are involving with the development from the different creation, except for the life styles from four communities to give the benefits, except for the different cultures. As the result, it is relying on the requirements of community development to gain the co-learning of cultures and lifestyles with the undivided space activity before making analysis on weaknesses and strengths of people in communities by using the technique of SWOT Analysis.



SWOT

Strengths

- S1: It is an area with a history of the settlement and expansion of Phitsanulok. Multicultural communities are connected. There are stories of history and ways of different cultures that are divided into Thai-Muslim, Thai-Christian, Thai-Chinese.
- S2: There are street food night market with multi-ethnic food such as Islamic, Thai, Chinese and Vietnamese.
- S3: There are public parks and community sports fields to encourage community members to meet and engage in activities
- S4: There are associations within the community such as the Chinese Association, the Catholic Association, the Railway Association and the Muslim League.
- S5: Schools are established as a center for community education and activities.
- S6: A community product factory has been established to promote occupations for people in the community, such as producing salt and fish sauce.

Weakness

- W1: The area for creative activities for everyone is not conducive to operations, thus affecting community participation.
- W2: As the road through the community is the main walking route into the city, it results in traffic congestion.
- W3: Since the community's roads are alleys, the community is quite congested and affects the community's surrounding landscape.
- W4: There are quite a lot of elderly people in the community but there is still a lack of promotion of activities for the elderly.

Opportunity

- O1: It is the main thoroughfare for entering the city center and main highway, thus providing easy access to the community.
- O2: The community is located next to the railroad area, so it's an opportunity as a destination for travelers.
- O3: It is a good opportunity for tourists to stay in the community as there are many small, medium and large hotels as well as guesthouses.

O4: There is a chance that tourists will come to buy community products, thereby stimulating the community's income.

Threat

T1: The perception of the outsiders on the community is relatively low.

T2: The government should step in to support the management of traffic routes within the community.

T3: There are still few activities to promote the participation of government and people in the community.

Figure 15: SWOT Analysis

Source: Prattana Sirisan

According to the community plan, it has made analysis on problem conditions with relevant factors of six strengths consisting of four weaknesses, four opportunities, three threats. Besides, there are six fields factors to combine the life style cultures of Thai-Chinese, Thai-Christian and Thai-Muslim in Mueang Sub-District in Phitsanulok province, such as geographical factor, occupation factor, technology factor, co-public benefit factor, politics and governance factor and education factor. Similarly, there are five fields of combined cultures for Thai-Chinese people, Thai-Christian people and Thai-Muslim people living in Mueang Sub-District of Phitsanulok province, such as food consuming field, language field, architectural habitats field, medicines field and dressing field. Significantly, it was found the important issue that is from the life styles of four communities to give benefits to each other, except for being in different cultures. However, it has the requirement to develop the community to gain the co-learning of cultures with the inheritance for living life styles in the same activity areas. After that, it has drafted for the strategies consisting of visions, missions and measurements, so the researcher has searched for the guidelines of creative activity management by aiming at the conservation of local community arts cultures that is from the origins of creative area patterns with the methods showed in the table 1 or strategy diagram of SPACE-TID PHITSANULOK.

SPACE – TID– PHITSANULOK

Order	Compositions	Sources
1	S – Story	Areas of Mueang District, Phitsanulok Province with historical stories of urban expansion
2	P- Perception	Perceived lifestyle with a mix of cultures, including Thai-Muslim, Thai-Chinese and Thai-Christian.
3	A-Art	Creative arts activities to stimulate the space to support

		ideas and imagination for people in the community and outside the community.
4	C- Culture	Conveying ideas that are consistent with respecting and protecting the culture of local people and honoring the culture of visitors, continuing and disseminating cultural messages to the community and visitors and the promotion of cross-cultural learning, including community participation with hospitality and humility towards people of different cultures.
5	E- Experimental	To create an experience for visitors and understand the local culture
6	T-Themes	Creative activity area to generate income for tourism stakeholders
7	I-In process	The process of creating a community art and cultural space using community cultural capital.
8	D-Design	Implementing design strategies to manage the artistic and cultural area of the community

According to the pattern development by using designing strategy for creative areas of arts and community cultures, the researcher has used the basic synthesis pattern with the stakeholders in the area to make the draft pattern called SPACE – TID– PHITSANULOK with the components: **First Component:** The development of creative areas with history stories as the learning of varieties and learning exchanges by joining to study the roots of history consisting of four areas; namely, Ratchaphruek Community, Rodfai Samakki Community, Wisatechaichan Community and Wisutkasad Community

Second Component: The opening of areas to make acknowledgement and learning across cultures for life styles in Mueang District of Phitsanulok province to be combined with the former to the present cultures

Third Component: The learning activities: Learning activities by using creative arts and spaces to create arts work for the area development continuously

Fourth Component: The learning support in across cultures including with community participation to broadcast and

conserve with the cultures practices to people in community and visitors.

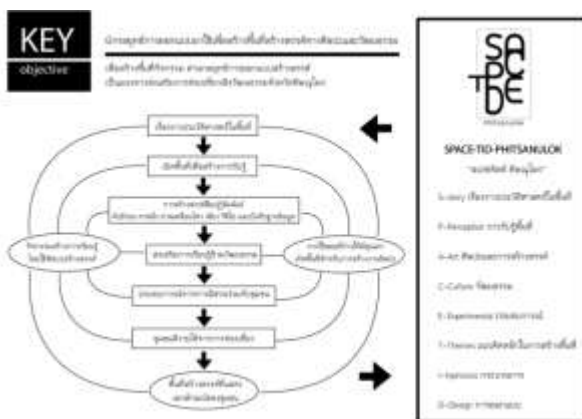
Fifth Component: Creative area to make attraction with traditions, cultures and community lifestyles for visitors to make understand about community ways with local cultures with gaining experiences from community participation

Sixth Component: Stakeholders in the areas to make the concept idea of arts and cultures creative activities with consciousness creation including of gathering in group voluntarily without forcing to stimulate the tourism in communities, such as communities with tourism incomes and earning with souvenir products

Seventh Component: The stimulation with the activities to use the broadcasting procedure to the next generations by creating participation procedure to renew and build the community identity for making the arts and community cultures areas with using the cultural community costs.

Eighth Component: The designing strategy and the interactive media creation consist of fonts, slides, motion pictures, sounds, videos and data base record to make the community identity with good memory to search and attract for the tourists

According to these components, it represents to the diagram pattern for using the designing strategy with creative arts and community cultures areas by promoting for cultural tourism in Phitsanulok province.



Using design strategies for artistic and cultural creations
 Creative arts activities to enhance learning
 Valuable use of free space to create art
 Historical stories in the Community-Opening the space to enhance Awareness-Creative interactions such as text, still images, animation, audio, video and database records
 -Promoting cross-cultural Learning-Experience of participating in the community-The community earns from

tourism-A creative space that represents the identity of the community.

- S – Story
- P- Perception
- A-Art
- C-Culture
- E-Experimental
- T-Themes
- I-In process
- D-Design

Figure 16: Main Objective-Based Processes

Source: Prattana Sirisan

Vision

Combining cultures is the main point of life style in Mueang District of Phitsanulok province by setting the creative area to be maintained, conserved and transferred with the community cultures into the next generations including of making understand to the visitors in Phitsanulok province.

Mission

1. Setup for community plan to make the guideline of cultural strength.
2. Support and stimulate to gain the community participation to create the arts creative and community cultures activities.
3. Create creative areas to acknowledge the lifestyles and community cultures for visitors by aiming at the cultural tourist attractions.

Strategy issue

1. It is involving with the development of community plan by using the designing procedure with community participation
2. It is involving with the transferring of creative activities procedure with community to make the movement for the arts creative activities areas and community cultures
3. It is involving with the presenting of understanding for combining cultures to push up for the cross cultures learning into the outside people in community becoming as the cultural tourist attractions.

Goal

1. The community has the development plan to use the designing procedure with the community participation.
2. The community has the arts creative activities areas to transfer with history stories for acknowledging to the outsider people until becoming as the cultural tourist attractions.
3. The community is the agent to present the combined cultures between the mixing with Thai and Chinese, Thai and Christian and Thai and Islam.

It used the arts creative procedure to make the movement with arts and cultures community connecting with the inheritance into the current lifestyles.

First Strategy: Quality Development with Community Participation Plan

1. Participation with decision to do activities
2. Participation with tourism benefits to community
3. System creation and follow-up mechanism with assessment to use

First Guideline: Create knowledge with understanding to study together on the history roots for searching the activities guidelines.

Second Guideline: Create the consciousness to assist each other for stimulating tourism beneficially to community with gaining product incomes from tourism souvenirs.

Third Guideline: Take assessment and follow for activities result to make the movement on the creative areas of community continuously.

Second Strategy: Make creative procedure with community with movement for arts activities to community cultures

1. Push up cultures with attraction, traditions, cultures and community lifestyle.
2. Create with creative arts concept idea of beauty beneficially to the applying for community.
3. Promote with arts creative activities and community cultures to gain the experiences from community participation.

First Guideline: Create with participation procedure to restore with community identity creation by transferring with the cultures into next generations through arts creative procedures for community people.

Second Guideline: Transfer and stimulate for concept ideas of arts concept idea in beauty with applying advantages to community including of pushing up the cultural community products to acknowledge and memorize for the visitors.

Third Guideline: It has made the movement for arts activities and cultural community including of arts arrangement in public areas and social activities and cultures of community people by using of fonts, slides, motion pictures, sounds and videos.

Third Strategy: It has made understood for the combining cultures to push up for across cultures into the acknowledgement with outside people in community to become as the cultural tourist attractions.

1. Push up to acknowledge for outside people in community and become as the cultural tourism attractions.
2. Push up to gain across cultures knowledge for opening the areas of cultural tourist attraction to the visitors.
3. Make understand about combining cultures to apprehend the life styles and the local cultures.

First Guideline: Create arts networks and cultural community of government, private and education section.

Second Guideline: Make community participation to transfer and conserve for the cultural practices to the community people and the visitors.

Third Guideline: Make record and create data base to build cultural learning to show the identity and history of community.

VI. CONCLUSION

It is involving with the designing strategy of arts space and cultural community to promote cultural tourism in Phitsanulok province: SPACE-TID-PHITSANULOK.

Besides, it has studied for finding of potential and cultural cost of area with stakeholders to build the knowledge in arts activities and community cultures based on the participation procedure and the owners of cultures with the advantages for cultural tourism community including of knowledge transferring and production creation with creative area styles to the visitors. Thus, according to the community participation it would gain the appreciation to promote the cultural tourism for being absorbed and touched with the community life styles for the revolving activities in areas including of the tourism promotion guidelines with representing of City's identity.

KNOWLEDGE TRANSFER

According to the knowledge transfer to communities, the researcher used the result to transfer the knowledge in communities as being the development guidelines or further in other community areas including of making the learning integration and transferring in academic to students, researchers and the interested people.

RECOMMENDATION

According to the life style, it is relevant to the promoting of life style stories and important histories including of the media development to give knowledge for each demonstration area with the connection learning to make understand about the alteration of current life style.

According to cultural arts, it is relevant to the area creation with doing arts activities and community cultures for transferring the life style stories, arts and traditions with absorbing of culture learning and promoting of cultural tourism in the City

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The Development of Tai Lue Community in North of Thailand with Cultural Innovation for quality of life and Cultural Tourism Supports.

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Abstract— Research studies on The Development of Tai Lue Community in North of Thailand with Cultural Innovation for the quality of life and Cultural Tourism Supports. Project objectives to studies cultural innovation to develop into a community development plan for Local, Improve the quality of life of the Tai Lue ethnic group who migrated to live in northern Thailand. Using the method of collecting data through interview of Cultural entrepreneurs from 4 villages in the area of Chiang Kham District, Phayao Province, Thailand. Analyze statistical data on community income, with the goal of obtaining guidelines for improving the quality of life of cultural entrepreneurs in the community and opportunities for the development of cultural entrepreneurs to community innovators.

The results showed that Cultural entrepreneurs are divided into 3 groups 1) cultural performing groups, 2) cultural product group, 3) the group of museums and community learning centers. They receive income from cultural tourism and need the development of management processes and convey cultural value. For the accessibility of tourists that change with the times and to create a memorable. Leading to additional income for the community a management process development plan is prepared and convey Tai Lue cultural value. To present to the local government to drive and promote activities, budgets and infrastructure in the future

Keywords— Cultural Innovation, Quality of life, Tai Lue

I. INTRODUCTION

A. Economy development guideline from University of Phayao researches and innovations

The Higher Education, Science, Research and Innovation Policies and Strategies 2020 - 2027 and Thailand Science, Research and Innovation (TSRI) plan 2020 - 2022 emphasize the integration of higher education, science, research and innovation all together to be the driven power of the nation. The government has established the National Higher Education, Science, Research and Innovation Policy Council to solve national issues including developing quality human resources, responding to agriculture challenges, creating innovation for grassroots economics and innovative community to prepare Thai people for future in 21st century, improving infrastructure for better quality and service to increase people's quality of life, elevating competitiveness and building economic foundation to cope with global

economic fluctuation. The Higher Education, Science, Research and Innovation Policies and Strategies play a key role to pursue the national challenging objectives which include: 1.) Develop essential qualities and skills for economic and social development. 2.) Emphasize on research as a strong foundation for the development in other sectors. 3.) Improve potential of entrepreneurs and transform innovation to economic and social values. 4.) Reform roles of Higher Education Institutes to produce innovation developers in response to the national challenging issues. [1]

University of Phayao is the only university in Phayao Province, part of the upper region in Northern Thailand. It was founded in response to Phayao Chamber of Commerce's proposal which aims to enhance economy and investment. The university would expand educational opportunities for the population in small cities because the majority of the population earns lower income from agriculture and is hardly able to afford further education of their children in faraway universities. After high school graduation, most students start working in the farms or in a city with a better economy.

Families who can afford further education for their children normally choose universities in big cities for a brighter future from higher education and increased career opportunities. These cause lagging economic development in Phayao Province. Population structure has inclined to elderly society as younger people tend to relocate themselves for better life opportunities in other provinces.

Building a university is like building a new city. It creates jobs and stimulates the local economy. Local students gain access to higher education with lower travel-related expenses. These create the process of restoring economic circulation within Phayao Province which is in compliance with the national tourism development plan in less visited areas. The location of Phayao Province is on the route to major tourist cities in Northern Thailand which are Chiang Mai Province, one of the top three Thailand's most visited cities and Chiang Rai, the most popular border crossing city and the main distribution hub of imported goods from Myanmar. In the past, tourists and visitors were more likely to pass by Phayao with less tourism purposes and have spent less time in the area.

Thailand Tourism Development Policies defines provinces into 2 groups which are 1) Group of highly visited areas which is popular for both domestic and international tourists including 22 provinces 2) Group of less visited areas which is less popular including 55 provinces.

The purposes are to create a strength base mechanic, to stimulate the economy, to increase income distribution and to decrease inequality by selling distinctive points such as arts, culture, food and way of life. [2]



Fig. 1. Upper Northern Thailand map (1) Phayao Province. (2) Chiangmai Province one of the top three tourist province in Thailand. (3) Chiang Rai Province popular border to Myanmar.

Thailand government has encouraged an economic policy “Less visited area tourism is tax deductible” for domestic tourists from 2018. This measure is aimed to create the expansion of tourism to smaller provinces. It increases income distribution to the rural population and people's alternatives of travelling. [3]

As a result, Phayao province is one of the less visited area provinces that has gained more visitors from 2018 onward. The Development Policies in Upper Northern Thailand that promote cultural and community based tourism are also the

supplement. Groups of visitors in Phayao province usually visit natural tourist attractions including Phu Langka National Park and Kwan Phayao (Phayao Lake) along with Tai Lue community in Chiang Kham district, Chiang Muan district and Phu Sang district.

These changes in social activities are the actions of government policies and practices which result in the economic improvement in Phayao province. These are also the priority in research operation and education of University of Phayao. Its research mission is to promote the undertaking of research and development in order to develop the society and the economy. It also defines itself as a university serving the community. The university aims to promote research and innovations for commercial benefits from developing essential career skills underlying the curriculum of School of Architecture and Fine Arts. Its courses focus on producing professions, cultural innovations from research and supporting sustainability in the area of Phayao province. In this research, the focus is studies on the Tai Lue community in Chiang Kham district development in terms of enterprise groups. The question is “How cultural tourism activities operated by the community can improve members' quality of life, create a powerful inclusive community and eliminate inequality? Furthermore, this will be used to shape the development plans at the provincial level and be a guideline for other communities in need of cultural tourism development.

B. Tai Lue in North of Thailand and Tai Lue in Phayao

Tai Lue ethnic group established in Xishuangbanna, China around A.D. 1180. The capital region was Chiang Hung. Due to wars, they refuge from their own settlement which was crowded and settled in new lands that were more fertile. The emigration routes are 1) Emigrating to Myanmar 2) Emigrating to Vietnam 3) Emigrating to Laos 4) Emigrating to Northern Thailand around A.D. 1804. Tai Lue ethnic groups have emigrated to Thailand for more than 200 years. [4] In Phayao province, there are settlements spreading in 3 areas including Chiang Muan district, Phu Sang district and Chiang Kham district

C. Politic and Key Person

Ladawan Wongsriwong was the first Tai Lue descent woman of Chiang Kham that has an important role in offering opportunities to Tai Lue ethnic groups in Chiang Kham district, Phayao Province. She was one of the people who played a role in driving the establishment of the University of Phayao. She was a news anchor on Channel 11, Department of Public Relations in 1991 - 1992. She was appointed as the spokesperson for the Prime Minister's Office in the government of Anand Panyarachun. She was the Deputy

Minister of Labor and Social Welfare in the government of Dr. Thaksin Shinawatra, 2001 - 2002.

Her role contributed to creating more life opportunities and progress in the Tai Lue community in her hometown, Chiang Kham district, Phayao Province. Her works include the establishment of Thailand's first Tai Lue Cultural Center in Wat Yuan Wittaya School. Together with an education officer in the area, Mr. Sawai Cheasaard, who was doing research on "Culture Affairs Administration of District Education Office in Phayao", Wongsriwong organized cultural events and activities for study and further development purposes. They have studied the management of human resource, expenditure and supporting resources in the District Education Office which were all found insufficient.

This resulted in the development that arose from local cultural assets. [5] Mr. Sawai Cheasaard created Tai Lue culture learning activities in Yuan Subdistrict, Chiang Kham District, Phayao province as an experiment which was funded by Wongsriwong and local leaders at that time. Their works were successful and encouraged the Tai Lue community and local people in Phayao province to realize the beauty and potential of Tai Lue cultures. After that, Wongsriwong was constantly elected as Phayao MP for 3 terms, consequently these Tai-Lue cultural activities had continuously grown to its peak in 2005. During her time as MP, Wongsriwong had built an international collaboration network as resulted in a Tai Lue celebration event called "Sueb Sarn Tamnan Tai Lue" (Carrying on with the Heritage of the Tai Lue). Tai Lue ethnic groups from neighbouring countries were invited to the celebration. Tai Lue festivities during the celebration include various kinds of culture exhibitions and showcases, talks, culture exchange, traditional play and singing, people dressed in their traditional costumes and holding fresh markets to sell traditional food and agricultural products. The annual event had gained national recognition, as a result, it had been constantly funded by Phayao Provincial Office.

However, there was an adjustment among government offices that affected the budget which was the combining of tourism authority and sports authority under the Ministry of Tourism and Sports. Accordingly, there was a lack of seed fundings in community level. This allowed the events and activities to be held by the entrepreneurs from other areas without local people participation. Therefore "Sueb Sarn Tamnan Tai Lue" has become sluggish and has been cancelled from 2019 until present.

In 2017, Mr. Nopparit Sirikosol, Chief of Chiang Kham district and Mr. Supachai Iemsuwan, Phayao Governor recognised the cultural value of Tai Lue ethnic groups in Chiang Kham district. So they nominated the Tai Lue community in Chiang Kham district for cultural tourism

community development funding. Sirikosol made the selection based on location. His selection was compiled with the main street to 4 Tai Lue villages including Yuan village, Mang village, Ban That Moo 1 and Ban That Moo 2 then named it after the route of Tai Lue Culture Inheritance parade walk: "Tai Lue Culture Street".

In this event, evaluators from the national central sector led by Dr. Thanapon Wattanakul, an academic from Silpakorn University and an advisor to the Office of the Prime Minister at that time, witnessed the success of the project. Accordingly, it established the collaboration network between Tai Lue community and a researcher from Silpakorn University, Assoc. Prof. Dr. Supanee Chayabutra. It then brought Tai Lue community in Chiang Kham district to be a part of the research project "Development of Community Cultural Capital using Local Government and Civil Society Mechanisms for Community Economic Potential and Development" [6] Tai Lue community in Chiang Kham district have received an ongoing cultural funding from this project which allows the community to manage cultural activities by themselves for over 3 years until present. One substantial outcome from this cultural funding is the "Tai Lue cultural market". In 2017, the early stage of this project, Department of Cultural Promotion, Ministry of Culture recognised the success of "Tai Lue Culture Street" and the concrete plan for "Tai Lue cultural market". For this reason, the community was nominated under the name "Tai Lue cultural tourism community, Mang and Yuan, Chiang Kham" by Phayao Provincial Culture Office for the Cultural Tourism Community Award and won the national 2nd prize.

There has been a consistent development emerged by the collaboration of local political leaders, researchers and provincial offices. This has empowered the community to see the value of their culture in terms of cultural tourism. As a result, it inspires local entrepreneurs in other communities to join the activities and uniquely develop their own products that embrace Tai lue's identity.

II. RESEARCH OBJECTIVES

Project objectives to studies cultural innovation to develop into a community development plan for Local, Improve the quality of life of the Tai Lue ethnic group who migrated to live in northern Thailand

III. RESEARCH METHODS

A. Research Design

There are 2 methods of data collection in this research. 1) Collecting the progress data of the improved quality of life occurred from tourism promotion activities that generate

income for locals. 2) Collecting data on the community's needs of what's essential in elevating quality of life and promoting tourism.

The sample group for data collection is set to be the group of entrepreneurs who participated in community tourism promotion activities. Researchers aim to conduct in-depth Interviews to sort out the groups that generate income for the community from cultural tourism. In order to analyze strong points, weak points, opportunities and barriers and use them as a guideline to create a framework of cultural tourism promotion policy proposals for local governments and universities. Expectantly, further area-based research will be prioritized to benefit people's quality of life.



Fig.2 Conceptual Framework for create a framework of cultural tourism

IV. RESULTS

Cultural entrepreneurs are divided into 3 groups 1) cultural performing groups, 2) cultural product group, 3) the group of museums and community learning centers.

B. Key Success of Tai Lue community development

The rise of 3 cultural enterprise groups above is the indicator of increased income and improved quality of life in terms of economy. The sustainability of becoming self-managed community arose from 3 key successes in cultural tourism management in form of activities from cultural assets including

1) The participation within the community [7] as shown in the cultural market activities in 5 Tai Lue villages. This requires participation from all 5 villages because the format is "different village each day": Monday at Mang Village, Tuesday at Yuan Village, Wednesday at Donchai Village, Thursday at Ban That moo 1 and Friday at Ban That moo 2. According to the recent meeting of the community panel that accepted the new member from 4 member villages to 5 member villages in 2020, it resulted in the schedule of activities above. All members have been involved in strategy planning, budget managing, marketing and promoting as well as site decorating in their area to attract people from neighboring villages and nonlocal visitors.

Community members can have both roles as producer and consumer which encourage the exchange of learning and understanding. The regular activities construct the familiarity and explicit schedule makes the attractions accessible. This

enables the ability of members to promote and create their own consumer network. 2) The realization of cultural value and importance lead to the idea of cultural inheritance. [8] Increasingly, people in the community who were local cultural market consumers became providers. They can see business opportunities and possible innovations from their cultural knowledge. Locals have learned that things they are familiar with can be developed and become extra income for their household. For example, there are a large number of local food brands emerged from cultural markets such as Aye Kao - Longan crispy noodle, Bamboo coconut sticky rice shots - Poh Luang Teung, Fried pork chilli paste, roasted pork with dry chilli and pork crackling. These products are local food in the area that were developed to be souvenirs. They contribute to the various choices for consumers which make the activities more interesting. 3) The pride and esteem in their own culture and knowledge lead to self-expression and storytelling. Local performing arts that passed from the older generation were adapted for cultural tourism including music, singing, dancing and plays. This kind of activity is widely open for all ages and genders to be at the talent performing stage. It is the space for accepting and understanding each other. Elderly people have more chances to join performing activities with others including the rehearsals instead of staying at home by themselves. Young people who are in culture inheritance clubs or performing art classes at school can use this space to show their talents as well as earning extra income. This increases job opportunities in wider areas by establishing higher recognition from nonlocal visitors and other cultural project producers.



Fig.3 Tai Lue cultural village map in Chiang Kam District in Phayao Thailand.

These are Tai Lue community development of 5 villages in Chiang Kham district, Phayao Province. From an unknown valley district of Chiang Kham and a pass through province of Phayao have become cultural tourism destinations.

C. Key Person who drives Tai Lue cultural community

According to data from interviews, it is found that the network is the most significant factor in Tai Lue community development. The network includes both local political leaders and collaboration within the government sector.

Apart from support as mentioned above, another secondary important factor is expanding education opportunities by

establishing a university in the area: The University of Phayao. The purposes of this establishment include offering access to higher education for youths in the area to eliminate the poverty and prostitution issue from having a better economy. Consequently, there are researches, academic services and arts and culture nourishment.

In collaboration with the community, University of Phayao has gathered diverse knowledge focusing on initiating women's career skills. For instance, women in Northern Thailand can earn a living from a cultural inheritance like weaving skill. According to a case study "Thung Mok model" women in Thung Mok village, Chiang Kham district have developed their skills to become professional weavers. [9] Their unique work is hand-woven bar for graduation gown of University of Phayao which successfully registered as the enterprise's intellectual property.

This is a role model for other weaving enterprises in terms of product designs. It also inspires women to be proud of themselves and realizes their potential of equally making financial contributions to the family. These success works lead to constantly receiving research fundings and continuously offering academic services to the community.

The center of development is the Centre of Tai Lue Cultural at Wat Yuan, Yuan subdistrict, Chiang Kham district. Yuan village is located near the District Office. Majority of Yuan citizens are government officers who are in the same generation. As of now, Yuan village can be called a village of retirees. On the contrary, this village is the main drive of the Tai Lue community. As former teachers, it gives the benefit of connection with all generations, communication skills, combined knowledge and ability to transfer knowledge. In other words, they are high quality human resources for Tai Lue community development. Their excellent skills include creating a management system, accessing local organizations such as schools and local government offices, being equipped to be researcher, academic and developer, ability to create project proposals and urgent expenditure plans in a rational manner considering the context of the area.

D. Innovator

Mrs. Hathaithip Choesa-art, the director of the Centre of Tai Lue Culture, a retired civil servant, dedicates her time to take care of the Centre without getting paid.

The Centre receives monthly financial support from Chiang Kham Municipality's budget of tourist attraction maintenance for 3,000 Thai Baht as cleaning fees. This amount of money has been managed in all year activities to continuously serve visitors. The Centre has allocated the space for retail by reselling local woven products and crafts. The Centre attracted a great number of visitors and made an average profit from retail about 10,000 Baht per month before the

Covid-19 pandemic. This income was distributed to purchasing more products to resell, decoration and maintenance and so on. In collaboration with Mr. Saroj Wongyai, they have persuaded more community members to become innovators by passing on weaving skills as well as the community's history to visitors. First batch of training includes 1) Mrs. Tongbai Monthatong, 65 years old, teaching hand spinning cotton yarn innovation and Tai Lue history 2) Ms. Kulthida Wongyai, 51 years old, teaching signature Tai Lue unique weaving technique of Chiang Kham.

Second batch of training includes 1) Mr. Kongwit Choesa-art, 32 years old, teaching applied weaving innovation using graph system which suits beginners. 2) Mrs. Uraporn Udonsunthi 53 years old, teaching 3D fabric constructing innovation for creating home decoration which inspired by Tai Lue Throwing ball. Every innovator stands by to work at the Centre and the cultural markets with rotation.

Overall, the number of innovators with traditional knowledge and teaching skills tends to increase.

E. Stakeholder

Consumers or visitors of the cultural center and other activities in the area can be divided into 5 groups including 1) Seniors and retirees, it has been the consistent arrangement of cultural tourism for 3 - 4 years until forming a large network by spreading words of mouth. Apart from having a large network, this group also has high purchasing power. 2) School students, university students and researchers who seek information and references in the Centre of Tai Lue culture for their studies or research. This group mostly recommends others within academic society or their friends and families. 3) Travelers who have seen cultural tourism promoting media, campaigns or reviews. 4) Families with young children and elderly parents. Trend of family travelers has been affected by Covid-19 pandemic, travelling to other regions or provinces is limited so cultural tourism in local areas becomes more popular as it gives nostalgic value to older people and bonds different generations in the family. 5) Foreigners who reside in Thailand. This group favors arts and culture attractions such as museums and homestay where they can learn local culture. It is clear that there is a diversity in consumer groups which confirms that cultural tourist attractions, experience based tourism and learning based tourism are still in high demands. The changing consumer needs are a result of changing society that shifts to a society of learning. From this finding, it is a guideline to further broaden profiting ventures for the community.

V. DISCUSSIONS

A. Discontinuity of policies and local leaders issue

Although Tai Lue cultural villages in Chiang Kham have received support from various sectors in the past. But since 2017, the budget from the local government has been cut and remains sole funding from research projects of the university sector.

First issue is the discontinuity of the development and its budget due to the frequent transference of local political leaders. It appears that Phayao is a small province which makes the governor position less competitive. Statistically, Phayao governors were in the position for an average of 6 months to 1 year and not over 2 years. Some governors were assigned to Phayao province briefly prior to retirement. This resulted in discontinuity of development planning and policies. Sometimes, governors brought policies of other provinces without adaptation to local contexts. Some were transferred mid-term which resulted in an unfinished work cycle. All works related to development were never fully accomplished or never have followed the quality control cycle, PDCA (Plan, Do, Check, Act). The development in community and society level requires long-term processes of more than 1 year to be able to achieve the goals.

B. Community's recognition: The rising recognition becomes a double-edged sword as plenty of organisations seek to work with community but community gained nothing from working for organisations in the government sector.

“Injured community” is the metaphor used in area based research. In explanation, when a community gains popularity until every organization asks to bring their various types of projects to the area at the same time, it results in losing its identity, changing way of life and more efforts. Often, people in a community have to hold activities responding to policies from the government sector rather than the community's needs.

In many cases, the community has to serve unwanted policies written by the government offices with little or none budget received. This issue frequently occurs in Chiang Kham district, Phayao province where people are required to work in government projects and have insufficient time to earn their living. For example, the community worked on 3 projects from 3 different organizations and appointed 3 sets of panels to work at the same time. That was a load of extra work required from a community scale. At the end, these organisations received project operation reports and photos but people wasted their time and energy working involuntarily. These are the obstacles of cultural tourism community development. The strong point of cultural tourism is offering chances for visitors to learn and experience the

local way of life. Exhausted community members may result in resistance to welcoming further tourism activities and collaborations.

VI. RECOMMENDATIONS

A. Sustainable support methods

Community voice should be taken into consideration and community members should be involved in the writing of community development plans in the format of community forum. Local political leaders who are ‘Key Person’ such as village headman, subdistrict headman, deputy district chief, district chief, governor and MP are expected to be the middleman connecting the central policies and local movements. These people should acquire cultural management skills and in-depth knowledge of cultural assets in their area.

Since culture influences different ways of life in different groups of population, deep understanding in local culture will elevate visions in efficient management. An example of countries with culture as a driver of economic growth is Japan. Japan attracts tourists with the beauty of their culture along with high-tech innovations. Even as the technology age has globally emerged, Japan has prioritized human resource development especially in the field of creative industries and traditional crafts industries by continuous works of the Association for Promotion of Traditional Craft Industries: DENSAN. The establishment of this association based on a Japanese Government programme to foster designated traditional crafts. Gathering and promoting traditional artisan groups allow artisans to exchange and continuously develop their skills and expertise which will prevent the knowledge from disappearing. [10] This is the recognition of cultural roots not only industrial aspects. This policy should also collaborate with the Ministry of Education as improving education with local cultural knowledge will truly create the society of learning.

B. Social values in Northern Thailand

Even though there is a success in the establishment of the University of Phayao to lower the costs in attending higher education for local students. But a large number of graduated students prefer to seek job opportunities in metropolitan cities such as Chiang Mai, Chonburi and Bangkok, assuming they may receive more desirable career opportunities. In fact, the key factor of rarely emerging new cultural based businesses in the area is the ideology of working in big cities. In northern Thailand, rural people usually value occupations that come with respectful social status. Many families believe that children who start their own business at home are a failure not a success and suddenly become scandalous in the village. This

results in a “brain drain” situation. In other words, progressive young generations who have potential, power and creativity have moved to labour markets in metropolitan cities. High living costs in the early stage of entering the workforce often leads to loan and debt. These are challenges that emerging cultural enterprises have to face and also have to prove themselves for acceptance in the society.

VII. CONCLUSION

The success of the Tai Lue cultural community, Chiang Kham district is that it has created cultural innovations based on experiments from time to time. Compared with other Tai Lue communities in upper northern Thailand, the Tai Lue community in Chiang Kham is a strong community that can substantially manage its cultural assets.

A. Sustainable innovations that nourish and inherit cultural assets

It is inconclusive about the first innovator of sustainable cultural inheriting innovations but there are 4 possible variants including:

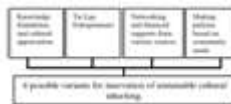


Fig.4 Model of possible variants for innovation of sustainable cultural inheriting.

1. Knowledge foundation, relative society and cultural appreciation. Historically, Tai Lue used to live in their habitats quietly with less interaction or cross marriage with other ethnic groups. Due to forced migration to Thailand as the captives of war, over years Tai Lue ethnic groups in Thailand become educated citizens and earn equal rights and opportunities as Thai citizens. However, the strength of relative society bonding is the reason for a strong community. When hosting events in the area, it is convenient for the community to cooperate and understand in the same direction. The relative society which means descending from the same family of ancestors, makes the profit-sharing fair and straightforward. Additionally, the establishment of learning spaces such as museums and learning centres in all villages results in cultural appreciation among younger generations.

2. Entrepreneurs and Tai Lue distinctive products. In 2009, there was a domestic economic development plan during former Prime Minister Dr. Thaksin Shinawatra term, called OTOP (One Tambon One Product) that encourages village communities to improve the quality and marketing of local products. This was the opportunity for the Tai Lue community to reveal their skills and ability through cultural products. This encourages self-confidence in expressing their cultural roots. Additionally, the uniqueness of Tai Lue distinctive

clothing and woven products receive well response from consumers. This resulted in cultural acceptance and appreciation which have led to further cultural innovations that have improved the community's quality of life until present.

3. Networking and financial supports from various sources. Even though the community is efficient and owns valuable cultural assets, it is undeniable that one of the most essential parts for activities operation is financial support. Having a Tai Lue descent political leader could be an advantage in terms of finding financial support. Financial support allowed the community, located in a remote area of an unfamous province for tourism, to be able to express themselves to the public. This can be defined as the beginning of the success in showcasing their acknowledged talents and skills without having hidden agenda.

4. Making policies based on community needs and understanding community ability. Strategic plans are essential in driving the community to sustainability in terms of cultural innovations and cultural inheritance. Sustainability can be explained as the community can self-funded continuous cultural activities as a routine even when other sources of funding have stopped. In order to achieve this, cooperation in making policies and plans between people, political leaders, local government offices and central government offices is mandatory. There needs to be a community forum in each village to create the engagement between stakeholders and users. The government offices network includes Phayao Culture office, Phayao Tourism and Sports office, Phayao Provincial Community Development Office and Phayao Provincial Industrial Office. These offices should cooperate in issuing the concluded budget for collaborated projects instead of dividing the budget into small parts.

Consequently, the community forum will be able to systematically set the development plans that integrate an engagement from all sectors. This has the potential to become a role model of a cultural-driven economy in the community and offer holistic benefits without misspent budget. This model can be evolved in wider areas such as Tai Lue communities in Chiang Muan district and Phu Sang district which have cultural similarity. It will establish positive relations and exchange learning between these communities which will promote tourism, generate income, improve quality of people's life and reduce social inequality respectively. [11]

B. Additional requirements for community efficiency in terms of product and innovation development

It is clear that the Tai Lue community in Chiang Kham district has been successful in raising cultural awareness and foreseeing business opportunities. However, most products

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emerged from traditional cultural knowledge and skills. In order to offer the variety for diverse groups of consumers, new lines of contemporary products that can be produced locally should be experimented. For instance, men can use their carpenter skills from making wooden weaving looms to create new designs of wooden furniture such as handwoven fabric upholstered wooden chairs. This can promote family business and launch new products with added value at the same time. [12] Another example is using local materials for renovating or preserving architecture purposes. By doing this, it can reduce material costs, generate income and pass on the craftsmanship to belong in the community. Apart from that, building skills can be useful when holding cultural events, exhibitions and even having residential buildings until it becomes a valuable community service asset. [13] Furthermore, to cope with the changes, cultural-based performing arts can be contemporarily adapted and expressed through online media. [14] This can contribute to both physical and mental health issues among elderly people and young people. Once the community can welcome tourists again, these performances will generate extra income as well as solving mental health issues. Finally, improving learning spaces like local museums and learning centres to be more accessible and attractive for young people. Pinning check-in points or landmarks will encourage learning processes outside classrooms and create clear pictures of community identity related to the actual locations. All of these are possible enterprise and community development based on cultural roots.

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A Communication Model for Community Development for the Sustainable Development Goals

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Abstract— Development communication is the application of all forms of communication that supports community and national development processes. Nowadays, the media landscape has changed dramatically, resulting in the development of new formats that are consistent and appropriate to the context. The objective of this research was to study communication patterns and processes for community development. This study was participatory action research. The study from Piang Din San Pa Pao Community Enterprise, San Sai District, Chiang Mai Province was used. The tools used were in-depth interviews, participant observations and small group meetings. The results of the study showed that communication for the development of their community enterprise was the most needed by the community. Although the community lacks the capacity for communication and engagement, the community overall needs to improve its communication potential. Community development communication that is appropriate for the era is social media (such as Facebook) to promote the marketing of one's products while creating understanding among others in the community. Communication can enable people in the community to participate in community development for strength, self-reliance, and readiness for sustainable development

Keywords— Community Development, Sustainable Development Goals, Social Media

I. INTRODUCTION

In the past, the guidelines for the community and social development in Thailand emphasized the development of infrastructure and the development of community areas in the suburbs or rural areas of Thailand to be modern. These developments focus on investment in core fundamentals and economic development to accelerate national income in line with the United Nations Development Guidelines. Subsequently, there are various national economic and social development plans to serve as a framework for all implementation. In the 21st century, the world has changed to an information society. Due to the rapid technological change, the development of the country has to be adjusted to suit the changing social context. The United Nations has set the Sustainable Development Goals (SDGs) as a direction for the development of countries with a 15-year framework from 2015 to 2030. Its essence is to set goals for the sustainable development of the country and the elimination of hardships while preserving the environment and quality of life for everyone on the planet [1]. Thailand has made the

commitment of this goal to the United Nations meeting. The draft of the 13th National Economic and Social Development Plan also outlines a focus on development in line with the SDGs [2].

Community development is a development process for communities to be strengthened with jobs, income, unity, and participation to raise the quality of their communities. Communication should be a priority in creating engagement for each community. Development communication is the application of all forms of communication for the benefit of supporting the social, community, and national development processes. The rapid advancement in information and communication technology has influenced a wide range of changes in a global society. Technology has been incorporated into almost all of our daily lives. The media landscape as the era of mass communication has transformed into the digital communication era [3]. In addition, the impact of the Covid-19 epidemic is an important driving force for journalists to adjust to work and learn to develop them to keep up with the advancement of technology to enable communication to achieve the desired objectives. As for the situation of the media landscape in Thailand, the value of

media budget spending in 2019-2020 indicates that the Internet is the only media with increased budgets. As shown in Figure 1[4], most people are restricted to live in their residences, thus the Internet has become the main medium that people choose to use for communication including researching various information and using it to shop for things of their own life. As mentioned above, it shows that Internet media has completely become the main part of human communication in the digital social era of the 21st century.

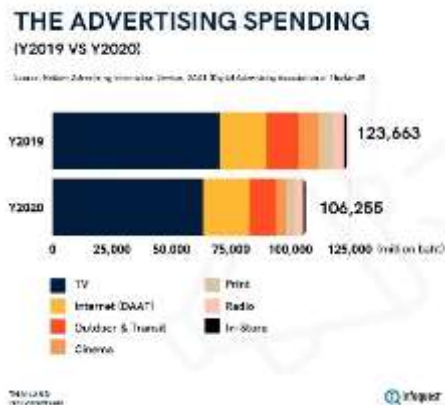


Fig.1 shows an overview of the advertising expenditure budget of various media in Thailand [4].

Chiang Mai University stipulates that the university's strategy must be consistent with the sustainable development goals. The researcher, as a working group of a high-impact academic service agency, was assigned to operate in parallel with the management of media instruction with the community. This course aims to enable learners to learn and understand the working of communication with communities and be able to apply communication skills and knowledge to develop communities with social responsibility. Students embark on community development practice using their communication knowledge from real-life locations and events. The researcher has worked in academic services for the Piang Din San Pa Pao Community Enterprise, San Sai District, Chiang Mai Province for a time, which is an integrated work with many sectors. We have seen many positive changes. Especially the situation of the COVID-19 epidemic in 2020, the government has ordered to stop all promotion activities and budget for various projects, causing enterprises to start planning for community development on their own. They have organic agricultural products, so they bring their products to sell by setting up a "Kad Piang Din" market as a public space for members to sell their products, including further development of tourism in their communities. The main problem facing enterprises is the lack of public relations communication so that people in the community can know and understand what the enterprise's purpose and operation are for. As a result, the

enterprise has only 21 members out of a total population of 4600 [5]. Moreover, most of the enterprise's products are sold to people in the same area. Enterprises still lack marketing and public relations to gain widespread recognition, as well as increase sales and subscriber numbers. The researcher saw this opportunity to bring communication as an important part of the development of the enterprise along with the determination to seriously integrate it into teaching and learning. We entrusted this task to our students to enable them to communicate on-site community development. The researcher and students will mentor the group in teaching, advising, and guiding the group's communication planning. The group initiates their own needs into action along with taking actions on their own, which strengthens the community and leads to sustainable development goals. The findings are beneficial to relevant sectors by applying this model of community development communication to other communities in similar contexts.

II. RESEARCH OBJECTIVES

To study the communication model for community-oriented development using a case study of the Piang Din San Pa Pao Community Enterprise, San Sai District, Chiang Mai Province.

III. LITERATURE REVIEW

The main idea of this research is communication for the community-oriented development of Kanchana Kaewthep[6]. The main points can be summarized as follows: Community development communication means using all forms of communication to enhance and support the development process. Community development works with multi-sectoral agencies and people who live in a given community and each person has differences in age and qualifications. Community development must develop in parallel with both perspectives, that is, object-oriented development (development of the physical environment) and the mental development of people in the community so that everyone can learn and understand the development in their community with the use and cooperation to develop together to achieve common objectives.

In addition, research that focuses on the 17 Sustainable Development Goals corresponding to this solution includes: Goal 1 is to end poverty in all its forms and everywhere. "Kad Piang Din" is the center of trading and exchanging goods of villagers and outsiders. Our products are made by grouping or are products that come from each household. Therefore, it is considered an enterprise that can end poverty because we can create a career for the villagers in the San Pa Pao community. Goal 8 is to promote continuous, inclusive, and sustainable

economic growth. Full employment, productivity, and individual work are true advocacy for development-oriented policies. Kad Piang Din encourages production activities, encourages entrepreneurship, motivates merchants, and promotes new entrepreneurs and the growth of small-scale enterprises by using communication technology as a medium for advertising Public relations of the enterprise [1]

Successful and sustainable community development requires the concept of community participation. ThawilwadeeBurikul [7] concluded that participation is an important guarantee that all people can live in the community sustainably. In carrying out any activity with the community, the Operator must act as a mentor to provide support and advice so that the community can achieve its objectives and must be required by the community. Participation in community activities must arise from the readiness, willingness, and commitment of the local people, way of life, culture, and people's enthusiasm to participate in solving their community problems. In many projects, this may not be successful because most of the problems and obstacles are not co-operated and participation by the public sector. This is because people still lack awareness and awareness of public and environmental responsibility. or a centralized public administration system that makes the civil servants view the people as just the beneficiaries Researchers need to focus on these and find ways to accomplish their objectives.

In this research, the researcher has been working with the community, so spatial understanding is very important. We can summarize the field research and interviews from local governments as follows: The community context in San Sai District is one of the rapidly growing metropolitan areas of Chiang Mai, located 20 kilometers from the city center. This district is designated as a place to support the prosperity of the city center and the location of many government agencies such as hospitals, agricultural research centers including Mae Jo University. Tambon San Pa Pao is about 6 kilometers from San Sai District Office. The demographic characteristics are the indigenous population and the immigrant population. The community of the indigenous population is characterized as an agrarian society with the suburban society of the immigrants.



Fig.2Geographic environment of San Sai District,

Chiang Mai Province

Occupation of the population in the community - In the past, the community-focused mainly on working in the agricultural sector, such as cultivating many agricultural products for sale. Recently, groups have begun to produce goods, processed food, souvenirs, and some have become more interested in community tourism. The Piang Din San Pa Pao community enterprise was finally merged in June 2019 with "Kad Piang Din" as the center of collecting the group's products in the form of a flea market. The market is open every Friday from 3 pm-6:30 pm. n. to distribute products directly to consumers. In addition, an agricultural learning center, a community vocational training center, and an agricultural technology transfer center have been built, funded by government agencies. There are 21 members of the group, representing each village in San Pa Pao Subdistrict [8].



Fig.3Location of the Piang Din San Pa Pao

Community Enterprise

A problem of the community- At present, the agricultural area has been transformed into a village allocated according to the nature of the suburban society. The outbreak of COVID-19 has caused the population to change their mindset from production to sell agricultural raw materials to production to sell products. Initially, it was sold in their community, which was well received by the suburban population. In addition, Maejo University has also attended training and encouraged the community to develop skills in terms of adding value to agricultural products, processing produce for sale, promoting souvenirs and community products including the organization of community-based tourism. Members of the enterprise are open to approaches both in terms of technology and new knowledge, but enterprises cannot still communicate to develop their community enterprises. As they are still in the early stages, they lack participation as others in the community still do not understand how to set up an enterprise, resulting in a relatively small amount of community participation. Moreover, there is a large amount of information and knowledge of enterprises, but they lack the skills to communicate outside the society.

In terms of media or communication models for community development, the researcher found that these are academic works in which the conceptual basis of communication in traditional media and the era of journalism is incompatible

with the changing media landscape. The researcher studied further to find a suitable solution and respond to the digital communication era where information is disseminated rapidly. Social media is a digital medium used to communicate through websites or programs using an internet connection. The messenger can share messages in various forms such as still images, animations, text, and audio in mixed media to the audience through the online network by interacting between the messenger and the recipient or the recipient. Two-way communication makes social media a distinct difference from traditional media, that is, each user can be both a receiver and a messenger at the same time. It can also be used from both computers and smartphones. Popular social media come in many forms, but Facebook is the most popular American social media service around the world. According to a survey by “We are social”, a UK-based social media advertising research firm, there are 2.7 billion Facebook accounts worldwide. In Thailand alone, there are 51 million Facebook account users. It also found that Internet users in Thailand spend an average of 2 hours and 25 minutes on social media per day [9]. This figure indicates that if a Facebook user posts any information on social media and that information can be released to the world quickly without any restrictions on time and place.

A. Research conceptual framework

After reviewing all the documents, the researcher created the conceptual framework “Community-oriented development communication model of Piang Din San Pa Pao Community Enterprise, San Sai District, Chiang Mai Province” as follows:

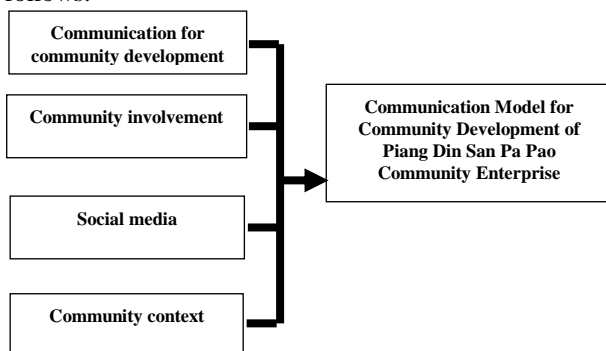


Fig.4 Research conceptual framework

IV. RESEARCH METHODS

A. key informants

1. Officials from government agencies that support enterprises 3 people
2. 3 Advisors and staff from Mae Jo University who are involved in the enterprise

3.21 members of Piang Din San Pa Pao Community Enterprise

4. 12 students participating in the project from the Faculty of Mass Communication, Chiang Mai University

B. Spatial boundary

The research was studied in San Pa Pao Subdistrict, San Sai District, Chiang Mai Province.

C. Time boundary

This research took time to survey and collect data from June 2019-November 2020.

D. Research Tools/Data Collection

1. In-depth interview form - Data was collected from government officials, stakeholders, and enterprise leaders.
2. Participatory observation - In this activity, the researcher assigns students to visit the area to collect actual data and activities as assigned. Researchers will follow them later to observe and record information in the role of project advisor.
3. Focus group - After organizing activities for enterprises, focus groups were used to extract lessons and bring all the information to a conclusion.

E. Data analysis

Qualitative data analysis is used to classify, categorize and correlate the data.

F. Research Methodology

Research Methodology as shown in Fig.5.

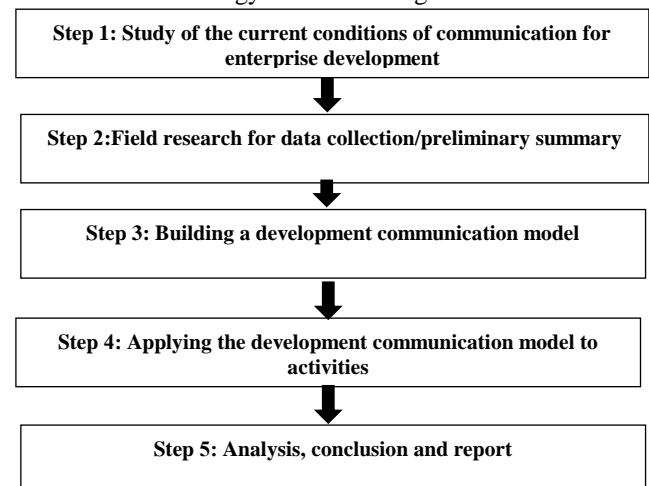


Fig.5 Methodology

V. RESEARCH RESULTS

The results can be summarized as follows:

1. The condition of communication for the development of enterprises in the field of public relations and advertising is low because even the people in the community are not aware of it. The main communication channel is communication

through personal media through word-of-mouth through all 21 members. Social media communication channels are operated via Application Line, which is communication only for friends of users but not publicly available. As a result, sales did not meet the target and did not receive cooperation from others in the community. The solution is detailed below.

1.1 Communication channels must be increased by focusing on communication via social media channels. In this regard, enterprise members must sign up for Application Facebook along with creating a Fanpage “Kad Piang Din San Pa Pao Chiang Mai” to be used as a medium for public relations about the operations/activities of the enterprise such as advertising for the sale of goods and products that the enterprise sells by specifying details about the person, contact methods, location, timing of distribution, and the price of the product. Members should be encouraged to share or recommend others in the community to visit the Fanpage to properly understand the purpose of the operation.

1.2 There should be activities in the “Kad Piang Din Knowledge Promotion Project for Entrepreneurs” by students who participate in the project. This activity is aimed at improving communication and public relations for enterprises and developing enterprises as well as promoting products to be widely known and able to generate income for members and communities. It also communicates to others about the enterprise and on-site purchases. The content for educating enterprises has the following key elements: 1) Using Fanpage in the role of page admin 2) Adding and selecting photos/videos for publishing via Fanpage. 3) Writing interesting messages for advertising/public relations through social media



Fig.6 Activities for the group

2. In developing a communication model for the development of the Piang Din San Pa Pao community enterprise, the researcher applied Berlo's theoretical concept of communication [10] to outline the activity model. Once the project is completed, the data will be analyzed and synthesized, and the results will be used to create and develop a new model as shown in Figure 7.

VI. DISCUSSIONS

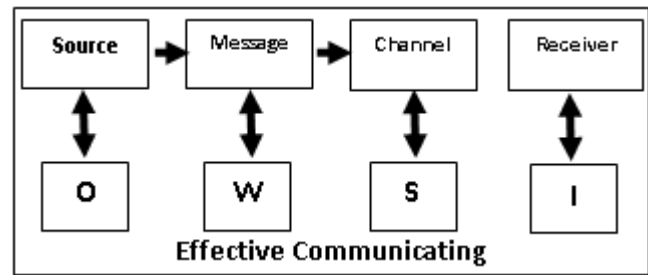


Fig.7 Communication Model for Community Development in a Case Study of Piang Din San Pa Pao Community Enterprise, San Sai District, Chiang Mai Province

Source means messenger. Usually, the sender must be someone who has communication skills and understanding of the information to be transmitted. The key element is O or Ownership. As the operation of the enterprise is not a standalone operation, the group members are considered joint owners of the enterprise, which allows the community enterprise to run smoothly and gain cooperation from all members.

The message refers to news, events, or products. If an enterprise wants to distribute or sell products through the media, it must have a W or Widen of Message. Since social media distribution can be presented in a mixed-media format, each message must be planned so that the communication is accurate and relevant to the needs of the audience.

Channel means a communication channel. This research chooses communication via S or Social Media and chooses the Facebook platform as the main communication channel.

Receiver refers to the target customers of the enterprise or other people in the community whom they want to communicate to these people to know and understand their operations. The audience is aware of the information and then they create an I or impression on the enterprise. The behavior of repeat purchases, recognition, word of mouth, and the decision to join the enterprise in the future will occur, which is the ultimate goal of community development communication because it fosters community engagement. Enterprises will have more products/products for distribution and further sustainable local development.

All this is based on effective communication, which is something that members of the enterprise must take seriously and they should develop themselves to reach this goal.

VII. DISCUSSIONS

1. Results - The current conditions of communication for enterprise development reveal that community enterprises have no restrictions on access to information technology and social media skills. Everyone in the group's mobile phones is connected to the Internet and can use social media. In all areas

of San Sai District, there are similar conditions. The researcher found that since San Sai District is a suburban community, there may be problems in understanding communication. The results of the survey in a community context show that the majority of people in the community place a greater emphasis on making a living. Consistent with the research of PrasertKongsong [11], villagers in Cha-uaat district, Nakhon Si Thammarat province do not attach importance to communication for their community development. Since they see it as the duty of the government directly, people pay more attention to work. The results of the interviews with the stakeholder groups were all in the same direction. In addition, EkkapotSrisuk's work [12] concluded in the same way that People living in the suburbs, even if the distance from the province is not more than 30 kilometers, access to prosperity in the public utility system and some people work in the province but they also have a mindset for living closer to rural communities, that is to prioritize their livelihoods over anything else. Therefore, the stability of life depends solely on the main source of income: salary or wages. These issues are the main obstacles to the successful implementation of the project. However, the enterprise was able to complete the project because of the leadership that can convince and advises members to be open to these changes so that the enterprise can move forward. This is consistent with the research by SupanitchChansong[13] that stated that one of the main factors of communication for developing self-reliance potential and promoting careers in the community is community leadership. Community leaders have the unique ability to persuade other members to participate in these activities and are important research assistants in community development research.

2. The results of the use of the communication model for development activities revealed that social media is an ideal communication model as a primary communication tool. Distinctive features of social media are quick and easy access via mobile phone and an internet connection, low cost of operation, and users can modify and add information on their own. These are the use of media for community development. Consistent with the concept of Kanchana Kaewthep [6] stated that Appropriate community development media must be media through which the community can learn and use on its own without the influence of outsiders. This proves that the concept of media for community development is not outdated. What has changed in the modern media landscape is Self-development into social media channels Modern communication is not limited to group communication or mass media; it is communication with everyone online. Therefore, the new generation of journalism has to keep up

with the times and learn to use information technology to achieve communication goals.

2.1 Content communicated via social media can reach recipients quickly. The number of recipients is as large as the number of Facebook accounts, which is considered the number one social media platform in the world. Facebook can communicate to people outside the community to let them know about the group's products/services. People who are interested in products can order products directly with the manufacturer via chat in the message box or phone number specified on the Fanpage. In addition, Fanpage can also communicate about all products and services of members. The inclusion of everything in the Community Enterprise Fanpage makes it more accessible to interested parties and increases marketing opportunities for other types of products/services. These are essential parts of understanding how to use technology properly.

2.2 Communicating to enable others to understand the purpose and actions of the enterprises in their community will create a correct understanding of the community. In addition, movements on a member's Fanpage such as posting, offering their products/services, those who are interested in posting inquiries, or dealing with each other. These are all incentives for others in the community to participate in the activities of the enterprises. This is consistent with ThawadeeBurikul's concept of community participation [7] in terms of inviting people in the community to participate in the development of the community to be self-reliant and lead to the goal of sustainable development.

Suggestions for implementing research

Other community enterprise groups can use this communication model, but it must be adapted to the context of their community and product. In addition, the communication potential of members of their community should also be explored for any limitations to find solutions. Such as training or advising so that all members can work effectively. In addition, to get the most benefit from communication for community development, members of the enterprise must recognize the importance and use it continuously to be effective.

Suggestions for the next research

More specialized communication formats such as online marketing communications, community tourism communications, and other product communications should be developed. In addition, further studies in the dimension of transformational leaders should be studied as group leaders are a key factor in the operation of enterprises and increase the knowledge of media literacy for enterprises.

VIII. CONCLUSION

Communication for community development in the modern era must develop a model that is consistent and appropriate to the changing context. The ideal communication channel is social media as it can communicate information in multimedia form to a large audience without limitations in terms of time, location, budget, and accessibility. The community can use the results in terms of marketing communication to create jobs and income, public relations to present to people outside the group to know and understand the operations/activities. Everyone can develop themselves as messengers. Using media for community development, the problem is not the tools, technology, or channels of communication but the means of communication. Finally, everyone in the community learns, participates, and understands the positive developments in their community. These are the scientific and artistic approaches that modern journalists need to learn and develop themselves concerning the best interests of the community.

ACKNOWLEDGEMENT

This research can be completed. The researcher would like to thank the Faculty of Mass Communication for giving the researcher a great opportunity to undertake this project, thus enabling the researcher to learn and develop themselves in working with the community. It is a very important skill to work in development media and lead to the Sustainable Development Goals based on Chiang Mai University's proactive strategy. The researcher would like to thank the Piang Din San Pa Pao Community Enterprise for participating as an important part of this research. The researcher sincerely hopes that enterprises can apply this knowledge and skills to the development of their communities. In addition, the researcher would like to thank Mae Jo University and all the people involved in this project for their cooperation in providing useful information for this research. In the conclusion of this research, the researcher will continue to develop and develop in the dimension of communication for community development, which is an academic work that is likely to be of greatest benefit to the community. It must not be useless academic work.

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Return and Sensitivity Analysis of the Cordyceps militaris Cultivation of a Small Business in Bangkok

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Abstract— Cordyceps militaris is currently the most popular and widely consumed herb. Entrepreneurs are interested in investing in cordyceps militaris as demand increases. The purpose of this research was to study the cost, return, and sensitivity analysis of a small business cordyceps militaris project in Bangkok. This research was quantitative research using questionnaires to collect data from a small entrepreneur in Bangkok. The research period was 1/01/2021 – 30/05/2021. We analyzed the data using Net Present Value (NPV), Payback Period (PB), and Internal Rate of Return (IRR). We divided the analysis into 3 cases: 1: Costs increased by 5, 10, and 15 percent while fixed income. 2: Costs were fixed cost while revenue decreased by 5, 10, and 15 percent. 3: Costs increased by 5, 10, and 15 percent, while revenue decreased by 5, 10, and 15 percent. The results showed that the production cost of dried cordyceps militaris was 78.99 baht per pack, net present value (NPV) was 2,335,436.41-baht, payback period (PB) was 1 year 3 months 15 days, internal rate of return (IRR) was 76.05% and the production cost of the golden cordyceps packed in capsules was 176.49 baht per bottle. The net present value (NPV) was 3,810,587.38-baht, the payback period (PB) was 10 months 29 days and the internal rate of return (IRR) was 111.77%. All three of these sensitivity analyzes had a positive net present value. The payback period was greater than 1, internal rate of return was greater than the desired rate of return. The results of the research showed that it could make investment decisions of entrepreneurs more efficiently

Keywords— Cordyceps militaris, Net Present Value (NPV), Payback Period (PB), Internal Rate of Return (IRR), Sensitivity Analysis

I. INTRODUCTION

Currently, the trend of health care professionals has increased, resulting in an overview of the dietary supplement market that grows even more. This growth factor is because of the continued increase in health consciousness over the past few years, stepping into the aging society, the emergence of various diseases, the epidemic situation of the Covid-19 virus, including various pollution problems and PM 2.5 problems. As a result, people are alert and turn to take supplements in the body care group such as vitamin C, multivitamins, and calcium, causing this group of products to expand more. New entrepreneurs are constantly coming into this market. As the overall market trend has increased, the product range is quite diverse and its target audience varies from mass to premium markets.[1] The consumption of cordyceps militaris is gaining widespread popularity. Over the past 10 years, we have researched the medicinal properties of cordyceps militaris. Cordyceps militaris have been found to contain

higher levels of nutrients, vitamins, minerals, and medications than the Tibetan cordyceps militaris. Cordyceps militaris has a sexual stimulant effect, anti-cancer, anti-aging, anti-inflammatory along with biologically active substances important in preventing and treating heart failure, nourishing kidneys and lungs, reducing allergy symptoms, asthma, boosting immunity, and anti-oxidant activity. [2] [3] In terms of government promotion and push, we can see that the Ministry of Commerce has a proactive policy in driving the master plan for herbal development. The goal is to increase the value of herbal products that have exceeded 3.6 billion in 4 years. In this master plan, six subcommittees have set up to drive the strategy into concrete continually and to achieve its goals, which comprise 1. subcommittee on raw materials 2. value-added subcommittee 3. subcommittee on research on innovations in medicine and Thai traditional medicine 4. subcommittee on the use of herbal medicines in the country 5. Subcommittee on herb city driving 6. subcommittee on Thai herbal strategy. Cordyceps militaris is the herb sponsored by the Ministry of Commerce, serving as a medium for marketing

information, trade promotion, packaging development, global branding and connecting trade to make Thai herbs that meet FDA standards as a business of 100% Thai people and the use of Thai herbal wisdom combined with modern science leads to the production of quality Thai herbal medicine. [4]

In terms of consumption in Thailand, the cordyceps militaris market is considered a very large market, focusing on customers who are of working age, stable occupation, and health-conscious or wishing to solve their health problems. Cordyceps militaris's customer base is, therefore, wide such as working-age 30–50 years, after retirement-aged 60–80 years, or working age with health problems. Statistical data shows that out of a total population of 100,000 people, there will be at least 3,000 of the cordyceps militaris market targets. An approximate estimate is that the monthly cordyceps militaris sales revenue in this target group is at least 700,000 baht, representing a 50% market share in Bangkok and its vicinity.[5][6]

According to the research report and investment prospect forecast of cordyceps militaris market in the People's Republic of China during 2013–2017, we found that the production capacity of cultured cordyceps militaris was 8,000 tons per year. The market for cordyceps militaris was expected to reach 1.5 billion yuan (1 yuan = 5 baht). Based on current prices, some data reveal that in 2018, global cordyceps militaris trade reached \$11 billion. In Thailand, we estimated that the overall market value of the food supplement market in 2020 had a market value of up to 23,916.80 million baht, which was growing from the year 2019 with a value of 20,876.30 million baht. I expected vitamins and dietary supplements to be valued at 1.8 billion baht, a 160% increase from 2019 with sales of 694 million baht, in line with the health market with 15% growth.[7]

Trends in demand for dietary supplements and herbs with higher growth rates, including policies for promotion and support from government agencies, researchers see business opportunities for new entrepreneurs in the dietary supplement and herbal business, especially cordyceps militaris, which are promising investment opportunities and good returns. The researcher, therefore, studies the cost, return, and investment sensitivity of cordyceps militaris cultivation to guide investment decisions. Government agencies can apply this information to policy-making to promote the commercial cultivation of cordyceps militaris for entrepreneurs who are interested and ready to invest.

II. RESEARCH OBJECTIVES

This research was to study the cost, return, and sensitivity analysis of a small business cordyceps militaris project in Bangkok

III. LITERATURE REVIEW

Theoretical concept

The return theory and project sensitivity considered by combining financial information in the cost (expense) and return (revenue) projections. Information related to projected cash inflow and outflow projections was used to measure the cost-effectiveness of a project's investment using discounting criteria. The reason for this principle, the researcher agreed with the difference in the value of money at different times, is that the present value of money and the future value of money had different values. Therefore, it was necessary to reduce the future cost and return value to the present value so that we could compare the values. We used the discount rate in this consideration. To calculate the value of money, we must take the discount rate from the first year of the project until the project investment maturity date. At the end of the investment period, the return on investment could calculate. We shall assess the return or value of the investment and the sensitivity of the investment under the criteria. Sensitivity analysis was a method used for cost analysis or budget estimates that were stable, non-sensitive, reliable, and accurate analysis results. However, if the results were significantly different, this would lead to uncertainty about the reliability and validity of the previously got analysis results. The most popular method for sensitivity analysis was Two-way sensitivity analysis. Two-way sensitivity analysis was a sensitivity analysis that simultaneously assessed the change in outcome from changes in the value of a variable or component in a two-factor analysis. The resulting value was a combination of the two factors to some extent, resulting in the same result number. The purpose of this analysis was to study the balance of changes in factors that were easily managed or controlled to achieve optimal results.

The project sensitivity analysis and investment decision of cordyceps militaris cultivation could be divided into 3 cases: 1: Costs increased by 5, 10, and 15 percent while fixed income. 2: Costs were fixed cost while revenue decreased by 5, 10, and 15 percent. 3: Costs increased by 5, 10, and 15 percent, while revenue decreased by 5, 10, and 15 percent.[8]

IV. RESEARCH METHODS

Population and sample

The population used in the study was a small business in Bangkok. The cultured ability of cordyceps militaris in 1 production cycle (90 days) equal to 10,000 bottles. The amount of fresh cordyceps militaris produced was 3 grams per 1 bottle of cordyceps militaris culture. During 1 year,

cordyceps militaris could be cultured for about 4 production cycles.

Research tools

The instrument used in this research was a questionnaire which was a review of concepts, theory, literature, and related research divided into 4 parts:

Part1: General information about respondents included gender, age, education level, average monthly income, and source of funding.

Part 2: Cordyceps militaris cultivation information included cordyceps militaris cultivation information and preparation for planting.

Part 3: Information on cost and return of cultivation included fixed cost classification, variable cost classification, fixed assets, and investment-related items.

Part 4: Information on problems, obstacles, and other suggestions

Data Collection

This research used both primary and secondary data. The methods for collecting each type of information were as follows.

1) Primary Data

We collected the data using a questionnaire based on the collection of data from current cordyceps militaris growers. This was to determine the cost, break-even point, and real return on investment in cultivating cordyceps militaris at 10,000 bottles per cycle.

2) Secondary data

This information was collected by researching books, research papers, reports, theses, academic articles, and information from relevant agencies.

Data analysis

The data collected from the questionnaire would analyze and divided:

1) Quantitative data analysis using descriptive statistics included frequency and percentage.

2) Quantitative analysis was an analysis of production costs and financial returns along with sensitivity analysis of investment projects using the following analysis:

2.1) Net Present Value (NPV) is the difference between the present value of cash inflows and cash outflows. The net present value shows the return on investment of the project. The decision criterion is that when the result of the net present value calculation is positive, the project can invest. However, if the result of the net present value calculation is negative, the project cannot invest. [9]

NPV value should be greater than or equal to 0.

2.2) Internal Rate of Return (IRR) is a calculation of the discount rate that makes the NPV equal to 0. Calculating IRR can tell you if invested in a project, what percentage of return on investment is. The decision criterion is that when the result of the IRR is greater than or equal to the desired rate of return, the project can invest. However, the result of IRR is less than the desired rate of return, the project cannot invest [10]

IRR = Discount rate at which the investment's NPV equals zero

IRR value should be rate of return greater than or equal to required rate of return. (10% is minimum rate of return for Business).

2.3) Benefit-Cost Ratio (BCR) is a ratio used in a cost-benefit analysis to summarize the overall relationship between the costs involved and the benefits of a project. If the BCR is greater than 1.0, we expect the project to provide a positive net present value to the company and its investors. [9]

$$\text{BCR} = \frac{\text{Present value of cash inflows}}{\text{Present value of cash outflows}}$$

BCR value should be greater than or equal to 1.

2.4) Sensitivity analysis determines the most sensitive variables of NPV or IRR, especially those that cause NPV to be negative. Sensitivity analysis is therefore useful for determining the effect of changes in related variables. Typical variables are production prices, sales volumes, investment costs, and inputs. We may test how these variables change will affect NPV or IRR. The analysis was re-analyzed after the new cash flow statement resulting from changes in the value of variables [10]

V. RESEARCH RESULTS

Part 1: General information of cordyceps militaris growers

In this research, one informant was a small business in Bangkok. He had four years of experience in cultivating cordyceps militaris. The average culturing period of cordyceps militaris was 70–90 days. Cordyceps militaris was processed into two products for sale: 1. Dried cordyceps militaris, 10 grams per pack. 2. Cordyceps militaris capsules, 15 grams per bottle. The initial investment budget was 1,061,950 baht. The funds used to come from the owners themselves, so this community enterprise had no obligation to pay off debts. There were 5 workers in production. The quantity for each cycle of cordyceps militaris depended on the market demand. The ability to cultivate cordyceps militaris per cycle was 3,000–10,000 bottles. On average, 4 cycles of cordyceps militaris could be cultivated per year. The amount of cordyceps militaris that could culture per cycle depended on the volume of the culture. On average, 1,000 bottles of cordyceps militaris culture yielded 2-4 grams of cordyceps

militaris per bottle. For this research, the average yield was 3 grams per bottle.

Part 2: Operating costs and expenses

The investment cost of cultivating cordyceps militaris comprised 1. Initial investment cost 2. Production cost 3. Direct labor cost 4. Operating expenses 5. Packaging cost of each type

1. Initial investment cost

The initial investment for cordyceps militaris cultivation was the room investment for cordyceps militaris cultivation, which included the room, equipment, tools, and materials needed for cultivation. We could summarize this: total investment amounted to 1,061,950 baht, which comprised depreciation of 133,385 baht/year and depreciation of 11,145 baht/month.

Table 1. Cost of cultivating cordyceps militaris

Type of cost	Total cost (Baht)	Cost / gram (Baht)
Production cost		
1. Cost of cultural food	29,840	0.994
2. Cost of cultivating cordyceps militaris	9,375	0.312
3. Other expenses	77,550	2.585
Direct labor cost		
Employee compensation per production cycle	42,000	1.41
Operating costs		
Operating costs	23,925	0.797
Packaging costs with product labels		
1. Dried cordyceps militaris, 1 pack contains 10 grams.	18	1.80
2. Cordyceps militaris capsules, 1 bottle contains 15 grams	85	5.667

Table 1 shows the cost of culturing cordyceps militaris. In one production cycle, 10,000 bottles of cordyceps militaris could be cultured to produce 30,000 grams or 30 kg of cordyceps militaris. Production costs were: the average cost for cultured food was 0.994 baht/gram, the average cost for culturing cordyceps militaris was 0.3125 baht/gram, other expenses were on average 2.585 baht/gram, the average direct labor cost per production cycle was 1.41 baht/gram and the average operating cost was 0.7975 baht/gram. In addition, the cost of packaging with product labels with dried cordyceps militaris was on average 1.80 baht/gram (1 pack contained 10 grams of cordyceps militaris, so the cost was 18 baht per pack) and the case of cordyceps militaris capsules averaged at 5.667 baht/gram (1 bottle contained 15 grams of cordyceps militaris capsules, so the cost was 85 baht per bottle). Therefore, it concluded that the cost of producing cordyceps militaris ready for sale with 10 grams of dried cordyceps militaris per pack was 78.99 baht/pack. With cordyceps militaris capsules containing 15 grams per bottle, the cost was 176.49 baht/bottle.

Part 3: Break-Even Point Analysis and Return on Investment

This small business had set prices to sell cordyceps militaris products in two ways: 1. Dried cordyceps militaris were sold for 390 baht per pack. 2. Fresh cordyceps militaris, the researcher had set the sales growth rate of 5% per year. The cost of production was increasing by 3% per year in line with inflation. In addition, we set the desired rate of return at 10%. Calculating net cash inflows, the researcher classified income into 3 cases of production and distribution:

Case 1: Production and distribution of only dried cordyceps militaris, the production and distribution volume were 3,000 packs.

Case 2: The production and distribution of only cordyceps militaris capsules, the production and distribution volume were 2,000 bottles.

Case 3: Production and distribution of 50% dried cordyceps militaris, production and distribution volume were 1,500 packs and cordyceps militaris capsules 50%, production and distribution volume were 1,000 packs.

I could show the calculation of net cash inflows:

Table 2 case 1, the production and distribution of only dried cordyceps militaris, the production and distribution volume were 3,000 packs.

Item	20X1	20X2	20X3	20X4	20X5
Revenue (Baht)	1,240,000.00	1,302,000.00	1,367,100.00	1,435,455.00	1,507,227.75
Cost of goods sold	255,480.00	263,144.40	271,038.73	279,149.89	287,544.99
Gross profit	984,520.00	1,038,855.60	1,096,061.27	1,156,305.11	1,219,682.76
Other Expenses	0.00	0.00	0.00	0.00	0.00
Profit before depreciation, interest and taxes	984,520.00	1,038,855.60	1,096,061.27	1,156,305.11	1,219,682.76
Depreciation expense	133,385.00	133,385.00	133,385.00	133,385.00	133,385.00
Earnings before interest and taxes	851,135.00	905,470.60	962,676.27	1,022,920.11	1,086,297.76
Interest expense	0.00	0.00	0.00	0.00	0.00
Earnings before taxes	851,135.00	905,470.60	962,676.27	1,022,920.11	1,086,297.76
Taxes expense (15%)	127,670.25	135,820.59	144,401.44	153,438.02	162,944.66
Net income	723,464.75	769,650.01	818,274.83	869,482.09	923,353.10
Cash inflows	856,849.75	903,035.01	951,659.83	1,002,850.09	1,056,738.10
Break even point	467.66 packs (467.66 packs, 4676.6 grams)				
Payback period	1 year, 2 months and 22 days				
Net Present Value (NPV)	2,519,421.68 Baht				
Internal Rate of Return (IRR)	86.62%				

Table 2 shows the calculation of net cash inflows in case 1, the production and distribution of only dried cordyceps militaris produced and sold at 3,000 packs. From the above information, we found that if the business produced and sold only dried cordyceps militaris, there would be a break-even point of 36 packs. The payback period was 1 year, 3 months, and 15 days. Net present value (NPV) was 2,335,436.41 baht. The internal rate of return (IRR) was 76.05%.

Table 3 case 2, the production and distribution of only cordyceps militaris capsules, production and distribution volume were 2,000 bottles.

Item	20X1	20X2	20X3	20X4	20X5
Revenue (Baht)	1,240,000.00	1,302,000.00	1,267,100.00	1,435,455.00	1,507,227.75
Cost of goods sold	255,000.00	263,144.40	271,038.73	279,149.89	287,544.99
Gross profit	984,520.00	1,038,855.60	1,096,061.27	1,156,305.11	1,219,682.76
Other Expenses	0.00	0.00	0.00	0.00	0.00
Profit before depreciation, interest and taxes	984,520.00	1,038,855.60	1,096,061.27	1,156,305.11	1,219,682.76
Depreciation expense	133,205.00	133,205.00	133,205.00	133,205.00	133,205.00
Earnings before interest and taxes	851,315.00	905,650.60	962,856.27	1,023,100.11	1,086,477.76
Interest expense	0.00	0.00	0.00	0.00	0.00
Earnings before taxes	851,315.00	905,650.60	962,856.27	1,023,100.11	1,086,477.76
Taxes expense (15%)	127,670.25	135,820.59	144,401.44	153,435.02	162,946.66
Net income	723,644.75	769,830.01	818,454.83	869,665.09	923,531.10
Cash inflows	856,845.75	903,035.01	951,659.83	1,002,850.09	1,056,738.10
Break-even point	dried cordyceps militaris was 18 packs, capsules was 9 bottles				
Payback period	1 year, 2 months and 22 days				
Net Present Value (NPV)	2,519,421.68 Baht				
Internal Rate of Return (IRR)	80.62%				

Table 3 shows net cash inflows in case 2, the production and distribution of only cordyceps militaris capsules was 2,000 bottles. From the above information, we found that if the business produced and sold only dried cordyceps militaris, there would be a break-even point of 17 bottles. The payback period was 10 months and 29 days. Net present value (NPV) was 3,810,587.38 baht. The internal rate of return (IRR) was 111.77%.

Table 4 case 3, 50% of the production and distribution of dried cordyceps militaris, production and distribution volume were 1,500 packs and 50% of cordyceps militaris capsules, production and distribution volume was 1000 packs.

Item	20X1	20X2	20X3	20X4	20X5
Revenue (Baht)	1,170,000.00	1,228,500.00	1,289,575.00	1,354,421.25	1,422,142.31
Cost of goods sold	226,970.00	244,079.10	251,401.47	258,943.92	266,711.82
Gross profit	943,030.00	984,420.90	1,038,173.53	1,095,477.33	1,155,430.49
Other Expenses	0.00	0.00	0.00	0.00	0.00
Profit before depreciation, interest and taxes	943,030.00	984,420.90	1,038,173.53	1,095,477.33	1,155,430.49
Depreciation expense	133,205.00	133,205.00	133,205.00	133,205.00	133,205.00
Earnings before interest and taxes	799,825.00	851,215.90	905,138.53	962,272.33	1,022,225.49
Interest expense	0.00	0.00	0.00	0.00	0.00
Earnings before taxes	799,825.00	851,215.90	905,138.53	962,272.33	1,022,225.49
Taxes expense (15%)	119,944.75	127,655.39	135,770.78	144,313.92	153,366.82
Net income	679,880.25	723,560.51	769,367.75	817,958.41	868,858.67
Cash inflows	813,003.25	856,765.92	902,782.75	951,143.82	1,002,123.67
Break even point	25 packs				
Payback period	1 year, 2 months, and 15 days				
Net Present Value (NPV)	2,335,436.41 Baht				
Internal Rate of Return (IRR)	76.05%				

Table 4 shows net cash inflows in case 3, 50% of the production and sales of dried cordyceps militaris were 1,500 packs and 50% of cordyceps militaris capsules were 1,000 packs. From the above data, if the break-even point with production and distribution of both types, the break-even point of dried cordyceps militaris was 18 packs and the break-even point of cordyceps militaris capsules was 9 bottles. The payback period was 1 year, 2 months, and 22 days. Net present value (NPV) was 2,519,421.68 baht. The internal rate of return (IRR) was 80.62%.

Part 4: Project sensitivity analysis and investment decisions in cordyceps militaris culture

We divided the analysis into 3 cases:

Case 1: Costs increased by 5, 10, and 15 percent while fixed income.

Case2: Costs were fixed cost while revenue decreased by 5, 10, and 15 percent.

Case3: Costs increased by 5, 10, and 15 percent, while revenue decreased by 5, 10, and 15 percent

Table 5 case 1: Costs increased by 5, 10, and 15 percent while fixed income. (Dried cordyceps militaris distribution)

Change in production cost rate	NPV (Baht)	BCR	IRR
costs increased by 5%, while fixed income	2,783,525.82	2.30	75.43%
costs increased by 10%, while fixed income	2,681,385.83	2.19	70.21%
costs increased by 15%, while fixed income	2,579,245.83	2.10	63.39%

Table 5, if the cost increased by 5% while there was a fixed income, it is found that net present value (NPV) was 2,783,525.82-baht, benefit-cost ratio (BCR) was 2.30 times and internal rate of return (IRR) was 75.43%. If the cost increased by 10% while there was a fixed income, net present value (NPV) was equal to 2,681,385.83 baht, the benefit-cost ratio (BCR) is 2.19 times and the internal rate of return (IRR) was 70.2%. If the cost increases by 15% while there was a fixed income, we found that the net present value (NPV) was equal to 2,579,245.83-baht, benefit-cost ratio (BCR) was 2.10 times and the internal rate of return (IRR) was 63.39%. In conclusion, although production costs increased by 5, 10, and 15 percent, there was income, net present value (NPV) was greater than 0, benefit-cost ratio (BCR) was greater than 1 and internal rate of return (IRR) was greater than the desired rate of return. Therefore, it shows that even if the cost increases, the business can still be profitable and operate normally.

Table 6 case 2: costs were fixed cost while revenue decreased by 5, 10, and 15 percent. (Distribution of dried cordyceps militaris).

Change in production cost rate	NPV (Baht)	BCR	IRR
revenue decreased by 5%, while fixed costs	2,639,242,053	2.29	75.15%
revenue decreased by 10%, while fixed costs	2,392,819.24	2.17	69.10%
revenue decreased by 15%, while fixed costs	2,146,395.96	2.05	62.98%

benefit-cost ratio (BCR) was 2.29 times and the internal rate of return (IRR) was 75.15%. With fixed costs and a 10% decrease, it found that the net present value (NPV) was equal to 2,392,819.24-baht, benefit-cost ratio (BCR) was 2.17 times and internal rate of return (IRR) was 69.10%. With fixed costs and a 15% decrease in revenue, we found that the net present value (NPV) was equal to 2,146,395.96-baht, benefit-cost ratio (BCR)

was 2.05 times and the internal rate of return (IRR) was 62.98%. It could conclude that although fixed costs and revenue reduced by 5, 10, and 15 percent, the net present value (NPV) was greater than 0, benefit-cost ratio (BCR) was greater than 1 and internal rate of return (IRR) was greater than the desired rate of return. Therefore, it shows that even if the cost increases, the business can still be profitable and operate normally.

Table 7 case3: costs increased by 5, 10, and 15 percent, while revenue decreased by 5, 10, and 15 percent. (Dried cordyceps militaris distribution).

Change in production cost rate	NPV (Baht)	BCR	IRR
revenue decreased by 5%, while costs increased by 5%	2,568,937.72	2.22	70.47%
revenue decreased by 10%, while costs increased by 10%	2,221,890.41	2.00	59.85%
revenue decreased by 15%, while costs increased by 15%	1,874,843.10	1.81	49.89%

Table 7, with production costs, increased by 5% and revenue decreased by 5%, we found that the net present value (NPV) was equal to 2,568,937.72-baht, benefit-cost ratio (BCR) was 2.22 times and internal rate of return (IRR) is 70.47%. With a 10% increase in production costs and a 10% decrease in revenue, we found that the net present value (NPV) was equal to 2,221,890.41-baht, the benefit-cost ratio (BCR) was 2.00 times and the internal rate of return (IRR) was 59.85%. With a 15% increase in production costs and a 15% decrease in revenue, we found that the net present value (NPV) was equal to 1,874,843.10-baht, the benefit-cost ratio (BCR) was 1.81 times and the internal rate of return (IRR) was 49.89%. It could conclude that although fixed costs and revenue reduced by 5, 10, and 15 percent, the net present value (NPV) was greater than 0, benefit-cost ratio (BCR) was greater than 1 and internal rate of return (IRR) was greater than the desired rate of return. Therefore, it shows that even if the cost increases, the business can still be profitable and operate normally.

Table 8 case 1: Costs increased by 5, 10, and 15 percent while fixed income. (Distribution cordyceps militaris capsules)

Change in production cost rate	NPV (Baht)	BCR	IRR
costs increased by 5%, while fixed income	4,725,802.81	2.77	118.52%
costs increased by 10%, while fixed income	4,598,807.78	2.65	111.08%
costs increased by 15%, while fixed income	4,471,812.74	2.53	104.24%

Table 8, with a 5% increase in cost and a fixed income, we found that the net present value (NPV) was equal to 4,725,802.81-baht, benefit-cost ratio (BCR) was 2.77 times and the effective rate of return (IRR) was 118.52%. With a 10% increase in costs and a fixed income, we found that the net present value (NPV) was equal to 4,598,807.78-baht, benefit-cost ratio (BCR) was 2.65 times and the internal rate of return (IRR) was 111.08%. With a 15% increase in costs and a fixed income, we found that the net present value (NPV) was equal to 4,471,812.74-baht,

benefit-cost ratio (BCR) was 2.53 times and the internal rate of return (IRR) was 104.24%. It could conclude that although fixed costs and returns reduced by 5, 10, and 15 percent, the net present value (NPV) was greater than 0, benefit-cost ratio (BCR) was greater than 1 and internal rate of return (IRR) was greater than the desired rate of return. Therefore, it shows that even if the cost increases, the business can still be profitable and operate normally.

Table 9 case 2: costs were fixed costs while revenue decreased by 5, 10, and 15 percent. (Distribution of cordyceps militaris capsules)

Change in production cost rate	NPV (Baht)	BCR	IRR
revenue decreased by 5%, while fixed costs	4,483,162.91	2.77	118.11%
revenue decreased by 10%, while fixed costs	4,113,527.99	2.62	109.51%
revenue decreased by 15%, while fixed costs	3,743,893.07	2.47	100.84%

Table 9, with fixed costs and a 5% decrease, we found that the net present value (NPV) was equal to 4,483,162.91-baht, benefit-cost ratio (BCR) was 2.77 times and the internal rate of return (IRR) was 118.11%. With fixed costs and a 10% decrease in revenue, we found that the net present value (NPV) was equal to 4,113,527.99-baht, benefit-cost ratio (BCR) was 2.62 times and the internal rate of return (IRR) was 109.51%. With fixed costs and a 15% decrease in revenue, we found that the net present value (NPV) was equal to 3,743,893.07-baht, benefit-cost ratio (BCR) was 2.47 times and the internal rate of return (IRR) was 100.84%. It could conclude that although fixed costs and revenue reduced by 5, 10, and 15 percent, the net present value (NPV) was greater than 0, benefit-cost ratio (BCR) was greater than 1 and internal rate of return (IRR) was greater than the desired rate of return. Therefore, it shows that even if the cost increases, the business can still be profitable and operate normally.

Table 10 case3: costs increased by 5, 10, and 15 percent, while revenue decreased by 5, 10, and 15 percent. (Distribution of cordyceps militaris capsules).

Change in production cost rate	NPV (Baht)	BCR	IRR
revenue decreased by 5%, while costs increased by 5%	4,356,146.88	2.63	110.33%
revenue decreased by 10%, while costs increased by 10%	3,859,537.93	2.38	95.29%
revenue decreased by 15%, while costs increased by 15%	3,362,907.98	2.15	81.33%

Table 10, the case of production costs increased by 5% and revenue decreased by 5%, we found that the net present value (NPV) was equal to 4,356,146.88-baht, benefit-cost ratio (BCR) was 2.63 times and the internal rate of return (IRR) was 110.33%. With production costs increased by 10% and revenue decreased by 10%, we found that the net present value (NPV) was equal to 3,859,537.93-baht, benefit-cost ratio (BCR) was 2.38 times and

the internal rate of return (IRR) was 95.29%. In case the production cost increased by 15% and the revenue decreased by 15%, we found that the net present value (NPV) was equal to 3,362,907.98-baht, benefit-cost ratio (BCR) was 2.15 times and the internal rate of return (IRR) was 81.33%. It could conclude that although fixed costs and revenue reduced by 5, 10, and 15 percent, the net present value (NPV) was greater than 0, benefit-cost ratio (BCR) was greater than 1 and internal rate of return (IRR) was greater than the desired rate of return. Therefore, it shows that even if the cost increases, the business can still be profitable and operate normally

VI. DISCUSSIONS

The results showed that the investment in cultivation and distribution of cordyceps militaris was a total investment of 1,061,950 baht. There were two business products: 1. Dried cordyceps militaris cost 78.99 baht per pack and sold at 390 baht per pack. 2. Cordyceps militaris capsules cost 176.49 baht per bottle and sold at 850 baht per bottle. The desired rate of return was 10%. The researcher classified income into production and distribution in 3 cases: Case 1 - The production and distribution of only dried cordyceps militaris with a production and distribution volume of 3,000 packs found that if only dried cordyceps militaris were sold, the break-even point was 36 packs. The payback period was 1 year, 3 months, and 15 days. Net present value (NPV) was 2,335,436.41 baht. The internal rate of return (IRR) was 76.05%. Case 2 - Distribution of cordyceps militaris capsules with a production and distribution volume of 2,000 bottles showed that if only cordyceps militaris capsules could be produced and distributed, the break-even point was 17 bottles. The payback period was 10 months and 29 days. The net present value (NPV) was 3,810,587.38 baht. The internal rate of return (IRR) was 111.77%. Case 3 - Dried cordyceps militaris production at 50%, production, and distribution volume were 1,500 packs and cordyceps militaris capsules of 50%, production and distribution were 1000 packs, it was found that if the break-even point in both cases, the break-even point of dried cordyceps militaris was 18 packs. The break-even point of cordyceps militaris capsules was 9 bottles. The payback period was 1 year, 2 months, and 22 days. The net present value (NPV) was 2,519,421.68 baht. The internal rate of return (IRR) was 80.62%. [11] [12] [13]

An analysis of investment sensitivity in case 1, costs increased by 5, 10, and 15 percent while fixed returns on both products found that despite the increasing costs, net present value (NPV) was greater than 0, benefit-cost ratio (BCR) was greater than 1 and internal rate of return (IRR) was greater than the desired rate of return. [14] [15] Therefore, it shows

that even if the cost increases, the business can still be profitable and operate normally.

An analysis of investment sensitivity in case 2 fixed costs while returns decreased by 5, 10, and 15 percent of both products found that the net present value (NPV) was greater than 0, the benefit-cost ratio (BCR) was greater than 1 and the internal rate of return (IRR) was greater than the desired rate of return. [14] [15] Therefore, it shows that even if the returns are lower, the business can still be profitable and operate normally.

Investment sensitivity analysis in case 3, costs increased by 5, 10, and 15 percent while returns decreased by 5, 10, and 15 percent of both products, we found that the net present value (NPV) was greater than 0, benefit-cost ratio (BCR) was greater than 1 and the internal rate of return (IRR) was greater than the desired rate of return. Thus, it shows that even if the costs increase and the rate of return decreases, the return of the business can still be profitable and operating normally.

VII. CONCLUSION

Analysis of the value of the investment in cultivation and distribution of cordyceps militaris in 2 forms: dried cordyceps militaris and cordyceps militaris capsules, we found that the net present value was highly positive, the payback period was fast, the profitability index was greater than 1 and internal rate of return was greater than the desired rate of return. It corresponded to the following investment decision theory: 1. The net present value was greater than or equal to 0. 2. Profitability index was greater than 1. 3. The internal rate of return was greater than or equal to the desired rate of return. This project required an investment of 10%.

An analysis of the sensitivity of an investment project under a five-year investment period could divide into three cases: Case 1: Costs increased by 5, 10, and 15 percent while returns were constant. Case 2: Costs fixed while returns decreased by 5, 10, and 15 percent. Case 3: Costs increased by 5, 10, and 15 percent, while returns decreased by 5, 10, and 15 percent. The results of the analysis revealed that the net present value was positive in all 3 cases. Profitability index was greater than 1 in all 3 cases. The real rate of return had a higher rate of return than the desired rate of return in all 3 cases. The study showed that the investment in the cultivation and distribution of cordyceps militaris was cost-effective and could cope well in volatile situations if costs increased or in return decreased in the future. This was because the business selling food supplements that could nourish and repair damaged parts of the body was diverse in terms of types and properties, and they may have a lower price. This would cause consumers to shift their behavior towards products that were closer to or more qualified than cordyceps militaris, thus potentially

affecting the operations of the business. Currently, the number of competitors in the cordyceps militaris market was increasing, which may affect the dynamics of sales and affect the cash inflow, profit, and liquidity of the business. Therefore, as a business, cordyceps militaris products should be developed and researched in a variety of formats. Components of cordyceps militaris that no-dried or ground for sale may be processed into other products such as facial, body, or hair care products to expand more customers and generate income for the business to be a competitive advantage when compared to other competitors. [16] However, external factors affecting return on investment were changes in consumer behavior, substitute goods, competitors, economic environment, and inflation. The sensitivity analysis of cordyceps militaris culture is considered in cases of cost increases while fixed return, fixed costs while lower returns, and increased cost while lower return. Sensitivity analysis enables investors to plan their operations appropriately under changing circumstances. Therefore, if investors decide, they should consider the financial viability as well as analyze the environmental factors affecting operations, leading to an appropriate projection of the cash flow received from the investment for the project.

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Enhancing Communicative Competence in English as a Foreign Language Through Hybrid Learning

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Abstract— Nowadays, English plays an important role as it is the universal language spoken by people around the world, and many countries have paid attention to its importance and try to improve their population's proficiency in English, and also aims to promote the competence in terms of international English communication: listening, speaking, reading and writing. This article attempts to present the enhancement of Communicative Competence in English as a foreign Language through Hybrid learning by studying numerous theories and concepts regarding English competence, assessment, elements of performance and the management of integrated methods of learning via lecture which teachers can apply it to help encourage the students to be effective in English communicative competence. It is a significant resource for a country's development related to the concept aiming to develop the learners' performance in using English, and competencies that are readily prepared for the circumstance changes of the world in the future.

Keywords— Communicative Competence, English as a Foreign Language, Hybrid Learning, Language Teaching

I. INTRODUCTION

English is a very important and necessary language in today's world because most people communicate in English, and it is also a universal language used in business, social issues, politics and education. Therefore, the countries which are not fluent in English are often unable to develop as well as the others of the world, or several develop slowly. Having well-qualified of its population is essential for the country's development including the development of the learners to understand English and the natives' language, culture in order to be able to use English in communicating fluently, accurately and confidently. In order to establish their confidence to learn English, the learners have to gain language experience both inside and outside the classroom [20]. If the learners can obtain meaningful language experience and apply in their daily lives, they will be able to communicate in different situations. Thus, the effective English learning management process is a vital part in developing English communicative competence among the learners.

Rapid innovation and technological advancements cause a sudden change in technology (Disruptive technology) which effects on our economy a lot and it is also relevant to the daily life of people in different countries around the world including teaching at school. A number of academic experts in education, especially teachers need to be active and adjust their methods of teaching and learning. They don't have to use a traditional way (Traditional Learning) which emphasized only lectures and only the teachers played an important role in imparting knowledge to the students. The content used in teaching was out of date, so the students might not be able to use the skills taught in their daily lives causing the learners to lack of competency in English communication. Those factors mentioned are the reasons why teachers should change their teaching methods.

There are several form and characteristics of excellent teaching method concepts; therefore, teaching and learning management to reinforce the ability to communicate in English among the learners in this modern world should focus on the students themselves as a center (Student center) to let them take part in learning based on their needs. One of this learning methods is Hybrid learning, an instructional

management focusing on creating interaction between one learner and another, or the other learners and a teacher (Interactive Learning). This kind of Hybrid teaching method can be applied to the modern technology and innovation to support the learners to study by themselves (Active Learning). This will help enhance the skills in the learners and lead to the improvement of English communicative competence in the learners.

Competency

Meaning of Competency: Many educators and academics have defined competency as follows:

David McClelland (1993) [2], a well-known American scholar has said that competency is a personality hidden within a person that can drive that person to be responsible and have excellent performance to meet the specified standard. The competency in McClelland's perspective consists of five components:

1) Skills are something a person can do well along with regular practice until he becomes skillful such as a dentist who has the skill to fill a tooth without any pain at all. 2) Knowledge is the knowledge that each person possesses, which is specific to each individual. 3) Self-Concept in values and attitudes related to the image of a person or what a person believes that it is his unique such as a confident person having the belief that he or she can solve problems by himself or herself (Self-Confidence).

4) Trait is the thing that describes a person who may be a leader or a reliable and trustworthy person and so on. 5) Motive is a drive making a person act or lead himself to a goal such as a person aiming to succeed in his life (having Achievement Orientation); implying that he likes to set his goals and makes it successful including always trying to improve his working methods.

The definition of competency that McClelland has defined is also consistent with the one explained by Scott.

Scott (1988) [1] has stated that competency is a kind of knowledge, skills and attributes related to each other, affecting a job where they play the role in. All of the ideas mentioned are in relation to all jobs and able to measure the results with accepted standards as a criterion or, in other ways, knowledge, skill and attributes can be promoted or created by development or training.

In addition, the Secretariat of the Education Council, which has conducted the research studies and developed the competency framework of early elementary students together with the research team and the working group planning the basic educating curriculum competency framework in [5] also has described competency that it is a behavior expressing a person's abilities in applying his own knowledge, skills and

characteristics to adapt in the work or various situations until he can be successful.

From the definition above, therefore, the exact meaning of competency is a person's ability to make use of knowledge, skills and all qualifications to achieve the best performance; shown through the works that reach the standards according to the specified criteria.

Competency assessment

Competency assessment on an individual can be done in a number of ways in which the rate of success depends on the selection of the appropriate methods or tools used in the assessment. The methods or tools in the evaluation of a person's competency can be divided into 3 major groups [15]: 1) The assessment by using a test that is aimed to measure a person's abilities to show his behavior according to the specified conditions such as a test measuring knowledge and the ability to perform tasks tending to assess competences related to the skills gained from the practice.

2) Behavioral observation is a performance assessment observing the behavior of the assess in certain circumstances. This assessment is different from the earlier one in the way that it uses a combination of multiple assessment tools or methods, such as the use of tests, interview with behavioral observations and a role play along with practicing in various activities, etc.

3) The assessment of reporting his or her own information is arranged by applying the assessment providing the information relevant to their competency by using a personality test, portfolio, questionnaires, an opinion poll, attitudes and attention scale or evaluating personal history of the past behavioral data by using the person's competency assessment tool adhere to the following principles:

3.1 The content scope or objectives of the assessment should be clearly defined what the competence is to be measured.

3.2 The success in using of qualified tools that can make in the assessment depends on the quality of the tools and assessment's suitability, especially accuracy and reliability. Thus, it is important to choose a standardized tool that meets the acceptable standard.

3.3 The systematic selection is carried out to create clarity and fairness that can specify the standards-both in terms of the competency to be assessed and the tools, judging criteria and all procedures in the evaluation since there are several types of tools used in assessing; therefore, efficiency and quality should be taken into account when measuring the individual's competency.

Communicative Competence in English as a Foreign Language

Definition of Communicative Competence in English as a Foreign Language

Communicative competence is the capacity to receive and transmit messages, the way a person knows a culture when using language to convey his thoughts, knowledge, understanding, feeling and his personal view in order to exchange the information and experiences beneficial to the development of his society including negotiating to eliminate and reduce conflicts, sorting out to obtain information based on reasons and accuracy as well as browsing sufficient communicative methods; thinking about the impact on himself and the society [10].

Thitiya (2017) [19] has talked about English communicative competence that it is the students' ability regarding knowledge, skills and attributes when they use English for communication, which is composed of speaking, listening, reading and writing skills, and the ability to use the language in all 4 areas in the communication: 1) Sociolinguistics competence 2) Grammatical competence 3) Strategic competence and 4) Discourse competence which are the students' skills to communicate and interact with others in the context or content that teachers have planned with the emphasis on thought processing and initiatives in order for students to be able to put the activities into practice and state a conversation, which is successful in accordance with the objectives where the students can survey themselves and reflect diverse forms of language practice with the values, beliefs and behaviors. The most critical goal is that students can be international citizens, who are able to exchange cultures with other nations, to become a more active person having thinking process about language, capable of being a language operative and interacting with others linguistically in the national community.

Kohn (2009)[8] has claimed that competence in English communication highlights the ability to use the language for communication and cultural exchange to communicate with others by using their native mother tongue.

Byram (2012) [11] has given a definition of English communicative competence in relation to 21st century education management as thinking, creating activities or language projects, supporting and empowering the learners to choose appropriate approach to improve the social worlds to keep up with the world in 21st century. Hence, the teachers should support the learners to enhance their ability to use English to communicate and exchange information appropriate to their skills, and provide a concrete teaching processes the learners have alternatives to choose speaking a

particular language based on real and imagined situations in the social worlds and other contexts.

According to those definitions of communicative competence in English as a foreign language above, it can be concluded that English competency refers to the students' ability to use English for communication: the abilities to realize grammatical or structural use, socio-communication, tactics to convey meaning and use language to speak and write by applying knowledge, skills and attributes when they have a chance to communicate or cultural exchange with native speakers

Elements of Communicative Competence in English as a Foreign Language

Canale & Swain (1980) [9] have distinguished 4 components of communicative ability:

1) Grammatical competence: The mastery of the linguistic code (verbal or non-verbal) which includes vocabulary knowledge as well as knowledge of morphological, syntactic, semantic, phonetic and orthographic rules. This competence enables the speaker to use knowledge and skills needed for understanding and expressing the literal meaning of utterances.

2) Sociolinguistic competence: The knowledge of rules and conventions which underlie the appropriate comprehension and language use in different sociolinguistic and sociocultural contexts.

3) Discourse competence: The mastery of rules that determine ways in which forms and meanings are combined to achieve a meaningful unity of spoken or written texts.

4) Strategic competence: It is composed of knowledge of verbal and non-verbal communication strategies that are recalled to compensate for breakdowns in communication due to insufficient competence in one or more components of communicative competence.

Hymes (1981)[3] has referred to the ability to communicate in English as social interaction that is important part of the ability to use language for communication the learners should have together with proper language use following the surrounded social and cultural rules, such as the ability to realize what to say in any situation, what the conversation is for, the social role of the speaker himself and the interlocutor; consisting of knowledge and the ability to determine whether a particular message is grammatically correct and acceptable for the natives, which text is appropriate to talk to each kind of people, and the meaning of what the natives speak in general to express the language like the native speakers.

Gagné (1985)[14] has said that the ability to communicate in English is a linguistic study of the ability to use grammatical terms and rhetorical, social-linguistic and strategic capacities, all of which indicate that metacognitions is a high-level

cognitive process and the ultimate goal of teaching. The aim of teaching is to educate and develop students' abilities to plan, monitor and organize new learning strategies.

All of the above components, it can be summarized that the compositions of communicative competence are the factors related to communicative ability to achieve goals and also language skills: listening, speaking, reading and writing. Consequently, the teaching and learning process should use appropriate English learning strategies to encourage the students to achieve 5 efficient communicative competences: 1) Grammatical competence 2) Sociolinguistics competence 3) Discourse competence 4) Strategic competence and 5) Metacognitive competence The 5 elements mentioned are associated to the implementation of English language's teaching management that the teachers have to plan the lesson and design activities in advance for each component to help promote successful communication and meaningful speech, and build confidence in the learners to apply their skills in the daily lives.

II. HYBRID LEARNING

Academics of education have defined and discussed meaning and importance of Hybrid Learning as follows:

Carman (2005)[7] has said that Hybrid Learning is the integration of online learning through a network and traditional classroom, learning face-to-face on site, both of which use facilities such as the internet as medium and other tools in the teaching surrounding to promote the lessons. The teachers focus on interactions from online teaching and participation in traditional teaching to develop challenging learning and respond to the individual needs of the learners to improve themselves for better competence.

Saliba, Rankine, and Cortez (2013)[4] has stated that Hybrid Learning is a systematic approach to teaching strategies or methods that combines time and teaching methods together, and it is also an integration between on-site classroom, online interaction and the use of technological information applied in the class.

Yaso(2017)[13] has discussed that Hybrid Learning is an educational innovation merging multiple learning modules together, such as using an online self-learning system or e-learning which emphasizes interaction and the ability to meet the objectives for the increasing potential in students and effective teaching methods.

In conclusion, Hybrid Learning means a teaching technique that brings the advantages of learning through an online learning and in the classroom together in which the emphasis is placed on the combination of a variety of teaching methods to create interactions between teachers and students and among the students themselves via world-class tools and

software playing the role in stimulating students to learn to be proactive and their thinking process including the ability to use modern technology which is more beneficial for learning.

Research related to Hybrid Learning to Enhance Communicative Competence in English as a Foreign Language

Syaifuldin (2017) [12] has studied the development of English-speaking skills using Hybrid Learning and found that it can improve speaking skill was done in two cycles. In every cycle conducted online learning and traditional face to face learning. The online learning source were announced in whatsapp group before face-to-face meeting. The online learning sources are websites (One Stop English, www.youtube.com), Instagram accounts (@englisharound, @teachersandrali, @grammar_tips), Applications (English Speaking & Listening, English handbook). It is proven that Blended learning can solve the students' problem in the class like inadequate learning and practicing time, afraid of making mistakes, being shy and unconfident to practice, by seeing their average score in every cycle they had been through. The score shows improvement in every aspect of English-speaking skill. Moreover, the students really enjoyed learning using Blended learning model.

Ghazizadeh and Fatemipour (2017)[17] examined the effect of blended learning on the reading proficiency of Iranian EFL learners. A quasi-experimental design was carried out with 60 intermediate-level Iranian EFL learners who were randomly assigned to two groups. The control group received traditional classroom instruction in General English, whereas the experimental group received classroom instruction in General English including blended instruction in the reading skills. Both groups were tested for their reading skills before and after the treatment using the reading section of the Preliminary English Test and their scores were compared. The independent t-test results indicated that blended learning had a statistically significant positive effect on the reading proficiency of Iranian EFL learners. The study also suggested that blended learning can be adopted in the English language classes to facilitate the learning process especially that of the reading skills.

Almurashi (2016)[19] has studied The Effective Use of YouTube Videos for Teaching English Language in Classrooms as Supplementary Material at Taibah University in Alula and discovered that English videos on YouTube can help the learners to understand English lessons and improve their English proficiency, and he has also found that those English videos are effective tools for teachers to use it for better lessons rather than teaching by using only textbooks alone. Furthermore, the students may have the attitude that

watching English videos on YouTube in the class can assist them in more enjoyable study and more pleasant atmosphere. Laborda (2009)[6] has investigated the use of WebQuests, a learning model that draws largely on English-language data on travelling website by conducting studies and researching information from various online sites compiled reports or booklets and having all sources mentioned presented with oral.

Eventually, the results have shown that, during the learning process, students have more opportunities to develop their technological proficiency in the use of computers and the internet while improving their language skills in various areas of fluency in English: high-level vocabulary and the ability to communicate through foreign language. Based on research findings related to the use of Hybrid Learning to enhance communicative competence in English as a foreign language mentioned above, it can be seen that, in language teaching at all levels, the concept of Hybrid teaching and learning has been adopted as a form of teaching and learning by bringing technology as a tool to help learn language. Consequently, it can be regarded as helping learners to be able to learn through computer systems that are free to communicate and exchange self-learning and from interactions with others so that the students can learn English at any time or any place, and at the same time, when entering a face-to-face class, students are able to ask questions, exchange ideas and learn between teachers or classmates.

Hybrid Learning Models

There are various teaching techniques under the Hybrid learning model presented by a wide range of educational researchers. These teaching techniques may be a combination of the following teaching and learning management characteristics as follows:

- 1) Face-to-face classroom teaching or traditional teaching style which emphasizes on lecturing, explaining, giving examples, presenting activities, etc. It is emphasized the teachers (Teacher center), which is a traditional method of teaching.
- 2) Teaching in the classroom supplemented by a digital technology media.
- 3) Rotation teaching and learning is the method that the learners participating have to rotate themselves to do all the rotation activities according to different knowledge that the teachers have provided.
- 4) Teaching in the classroom is the method that the students can study via online or off line learning programs as specified by the teachers, and the teachers have to observe and to help the students.
- 5) The online teaching programs are the process that students don't have to attend classes.

6) Teaching in the laboratory is the process of teaching which lets the students work on their own probably with or without their teachers to help them.

7) Self-study is the way that the students study on their own learning methods.

8) Study in pairs or group-activities is the method that the teachers divide the students in pairs or into groups organized in the class or online learning programs.

9) Teaching through online learning programs at the real time.

10) On-site learning with knowledgeable people or experts with or without an instructor.

11) Learning from real-life experiences.

12) Learning by attending the meetings, seminars or events organized and being able to enhance knowledge and experiences.

Strategies in using technological media for managing communication between the teachers and the students can be organized in many forms depending on convenience and appropriateness, such as using computer programs or applications that support learning in the class: learning through various e-learning programs. In addition, social media (Social Media) can be used to facilitate learning, such as meetings or seminars through the chat room of Facebook, line, Google meets, Microsoft Team, or other LMS systems such as desktop computers or portable computers, tablets, mobile phones, etc.

To design the Hybrid-learning curriculum, all steps may be taken from the ADDIE Model [16] teaching system that includes inputs, steps of Analysis (A=Analysis) Process. "Process" is the designing procedures to develop DD = Design & Development. Output is the students' work and process that has been evaluated and is adjusted based on the results obtained at the stage of evaluation during implementation and the final evaluation (E = Evaluation) as shown in Fig. 1.



Fig.1 The hybrid learning instructional design by integrating various teaching styles and the ADDIE Model system theory framework

The Enhancement of Communicative Competence in English as a Foreign Language

When focusing on competency in English, the instructors can apply patterns, principles, concepts and theories related to the research in teaching and learning by following the steps below:

- 1) Analyze the problem condition and the learners' context needs
- 2) Design of learning management
- 3) Apply the designed learning management in real situations including a result record after applying
- 4) Assess the learners' learning skills

The analysis of the problem condition and the learners' needs and context should be the first step of teaching which the teachers have to pay attention to all the problems of teaching and learning process, and others regarding the learners, including their needs especially the subjects they are interested in and relevant to the daily lives. This can help the learners to study English more easily by linking themselves with previous knowledge to facilitate the creation of new knowledge.

To establish the designed learning management effectively, the teachers need to use the data from the analysis of the problem conditions and the learners' context and needs in designing the lessons to be suitable for the time and the situations due to the conditions and events in the world which are always changed, so teaching and learning can be both in the classroom and in outside the classroom in case of abnormal situations as follows:

- 1) The presentation stage of normal circumstances, the teachers can take students to study with experts or real situations to study based on the topics that the instructors have set up, or the instructors can also give a lecture to the learners, explanation and give examples of the topics covered in traditional learning styles. However, if the learners cannot attend the on-site class, the teachers can teach them by giving lectures or explain and give an example of the lessons via online chatting room on Google Meet or other online sites.
- 2) The practice stage, the teachers have to introduce all learning resources on the online site and other digital media to enable students to search for the additional information and knowledge that they would like to study outside the class, such as the National Library of Congress, YouTube, free website or application which do not need the students to complicatedly install software on their computer or sign in after paying fee. One of the most popular websites for English learners is EDpuzzle, a website creating interactive lessons in the forms of video through a combination of the videos and the lesson content from various open learning-sources including YouTube, National Geographic and TED talks. Moreover, EDpuzzle can also create quizzes to measure and evaluate the learners' performance after finishing each lesson, and then they can do exercises that the teachers have appointed to practice their skills and discuss about exchanging ideas, etc. Thus, it could be said that this hybrid learning method is the way to encourage the learners to be

able to communicate in English through interesting multimedia sites.

- 3) The applying-knowledge stage, the instructors can require students to present their knowledge in front of the class or make a video clip presenting on several topics taught in the lessons and publish online via any social media.

All of the learning models mentioned above will be implemented in either regular or online classes. The teachers then record the results after the class in an AAR form in order to use it as a guideline to improve the design and teaching management in the future.

The teachers can evaluate the learners by observing the learners' behaviors or checking the work assigned or the teacher's paper tests

III. CONCLUSION

Hybrid learning is another teaching style used in language learning-management to make the English classes more interesting and to attract the learners' attention, they will get more determination to study English. In this case, Hybrid learning focuses on collaboration by integrating both the face-to-face learning styles and computerized learning, so the scope of learning is not limited to only in the classroom. At present, this teaching method is used in all levels of education to reduce gaps or educational inequalities. It also allows the learners to experience in the language skillfully and to have effective communication skills in English. In summary, Hybrid learning is a form of language learning that is suitable to enhance the students' communicative competence in English as a foreign language.

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Strong community development based on social capital and cultural capital in Suphanburi Province

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Abstract— The objectives of this research were 1) to study the strong community of Suphanburi Province. 2) To study the process and methods of social capital management and cultural capital and strong community development in Suphanburi Province. and 3) to study the problems and obstacles of the process and methods of social capital and cultural capital management in Suphanburi Province. It is a qualitative research consisting of document analysis and visual field surveys. By interviewing the community leaders network committee 10 people, government executives, private sector, civil society, entrepreneurs 15 people, elderly people in the community 10 people, people living in Suphan Buri province, 10 people, total 45 people. used is an interview form research results

1. A strong community from the past to the present of Suphan Buri Province

Suphan Buri Province is one of the provinces in the western central region of Thailand. Located on the plains of the Tha Chin River. or the Suphan Buri River flows along the length of the province from north to south. Most of the area of Suphan Buri Province is used for rice farming. There are important rivers that flow from the north to the south, such as the Tha Chin River or the Suphan Buri River. Most of the population is engaged in agriculture.

2. Processes and methods for managing social capital and cultural capital and the development of strong communities in Suphanburi Province

physical and social context

Tha Chin River or Suphan Buri River is considered the lifeblood of Suphan Buri Province in terms of country, economy, society and culture. The social condition is humble and generosity. It is semi-urban, more rural than the city. There are ties with relatives, a society that is not very strict about discipline.

Economic/Occupational Characteristics

Most of the population is engaged in agriculture. which are widely distributed in every district, followed by trade occupation, civil service occupation Employees and general contractors The important economic animals are pigs, cattle, buffaloes, chickens, ducks, shrimp and freshwater fish. Able to earn several billion baht per year in Suphanburi province. For the industrial sector, it is mainly related to the production in the agricultural sector, such as sugar mills, agricultural processing plants and others. traditionuphan Buri Province is an old province that consists of Thai people of many nationalities. Therefore, there are various customs. In addition to the basic traditions that are the same as other localities or provinces, such as New Year's Day traditions Songkran tradition, ordination ceremony, wedding ceremony, Loy Krathong tradition, funeral ceremony, etc. personal

In Suphan Buri Province, there are people who are alert and want to be a strong community that can support themselves when the economy is going backwards. Driving strong communities has been a topic of discussion for a long time. but still unable to achieve results, both public and private support

Management

Suphan Buri Province is ready in many ways. There are both government and private agencies to help and support in various fields.

3. Problems and obstacles of the process and methods of managing social capital and cultural capital and the development of strong communities in Suphanburi Province

From the Covid-19 situation that has spread throughout Thailand, it has greatly affected Suphanburi province in terms of trade, investment, tourism, education. Tourism has a high impact. Tourists fell by 60 percent, and merchants and vendors were facing serious problems. There is also an impact on employment in Suphanburi province. Small companies or shops have to close themselves because they can't bear the cost

Keywords— *Learning achievement; electronic and electrical circuits; Electric circuits practice Introduction*

I. INTRODUCTION

The development of a country towards a sustainable balance requires greater emphasis on strengthening national capital such as social capital, economic capital, and natural resource and environmental capital and linking them for the benefit of development. Enhancing social capital is the cornerstone of development. Development begins with the development of the quality of people in the sense that they are knowledgeable and moral, have public consciousness, and are aware of changes to lead to the development of a strong community. It also requires mutual assistance within the community and between communities and the power of national development from the gathering of people in rural communities and cities, villages, and between villages, districts, and provinces. This includes one or more occupations from areas such as foundations, cooperatives, associations, or other unregistered forms. However, the integration of professional groups and clubs must have rules, principles, and rules of coexistence along with strengthening the integration of the community, sharing ideas and learning into practice and knowledge management in a variety of ways under the social landscape that is suitable for living based on resources, wisdom and community culture (Kitiphat Nonthapatamadul, 2007) Currently, the world is in the third wave of technology society. For Thailand, there is an overlap of the three waves, i.e. about 60% of the population is in the agricultural sector (wave 1), while the other part is in the industrial sector (wave 2) and modern technological society or a globalized society. Although the second wave brought benefits from development, there were many social problems, while the third wave engulfed Thai society inevitably. Thailand has therefore reached a point where we need to decide on a suitable development approach that, under the inequality social structure above, there must be a way to formulate a strategy of national development to suit the current situation. Many areas of Thailand are affected by liberal capitalism and globalization in the sense that it has caused such a change that we do not see the value of social capital and cultural capital, which has been the capital of Thai society for a long time. The emergence of urbanization processes in Bangkok and major cities is increasing. There is the movement of people into urban areas or urban expansion. The advancement of urban communities has led to the migration of rural populations into urban areas, making urban areas denser. With the economic and social changes, the deterioration of the city has increased accordingly. The urban expansion will result in the decentralization of the city's population and dominate new areas around the city. Areas supporting urban expansion are suburbs (Attida Buddhaduang, 2011, p. 5). In this study, the

researcher interviewed Dr. Prasit Vejprakit (January 2020), a specialized fishery scholar, under Suphanburi Provincial Administrative Organization. The choice of area in Suphan Buri Province was because it was an area with a variety of people's lifestyles and areas of strength and potential. It was also famous for being a learning center in various fields of knowledge including agriculture, tourism and sufficiency economy. More importantly, there were many interesting knowledgeable people or local philosophers. Suphanburi province is a community that is open to capitalism and globalization, so it is an area that should be highly studied in terms of the use of "social capital" and "cultural capital" as well as problems and obstacles along with finding ways to prevent and correct it for the benefit of driving the community into a desirable society or designing a quality society for the benefit of the country's further development.

II. RESEARCH OBJECTIVES

- 2.1 To study the strong community of Suphanburi Province
- 2.2 To study processes and methods for managing social capital and cultural capital in conjunction with the development of strong communities in Suphanburi Province
- 2.3 To study the problems and obstacles of the process and methods of social capital and cultural capital management in Suphanburi Province.

III. RESEARCH SCOPE

3.1 Spatial boundaries

In this research, the researcher interviewed Dr. Prasit Vejrasit (January 2020), Specialist Fishery Academician, Under the Provincial Administrative Organization, Suphan Buri. The choice of area in Suphan Buri Province was because it was an area with a variety of people's lifestyles and areas of strength and potential. The results of the study could be used to develop Suphan Buri Province to be suitable for the context of the area and in accordance with the needs of the people in the community.

3.2 The scope of key informants

Key informants consisted of 10 Community Leaders Network Committees; 15 government executives, private sector, civil society and entrepreneurs, 10 elderly people in the community and 10 people living in Suphan Buri Province, a total of 45 people.

3.3 Content scope

In this research study on the development of strong communities based on social capital and cultural capital in Suphanburi Province, the topics of study were: strong community of Suphan Buri province, physical context,

history, social characteristics, community economy, social capital, cultural capital, strong community development of the community, problems and obstacles in the development of the community, and guidelines for resolving and maintaining a strong community of Suphanburi Province.

3.4 Scope of time

The researcher planned the implementation for a period of 10 months from January-October 2020.

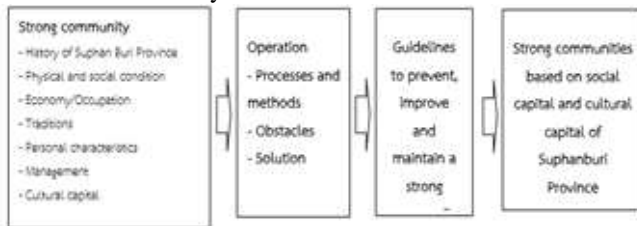


Figure 1: Improvement of work from Suwit Kongsong's research conceptual framework (2019)

IV. METHODOLOGY

Data collection

A research study on the development of strong communities based on social capital and cultural capital in Suphanburi Province, the researcher selected qualitative research and participatory action research processes by collecting data from relevant documents and field research. There were methods for collecting information as follows: 1. Documentary Study was a study through the collection of primary and secondary documents and information related to social capital: information obtained from research in books, academic documents, thesis and related research by collecting and processing to prepare a research report.

2. Field Study was the study and research of local stakeholders using various methods: interviews with representatives from the public, private and public sectors that played a role in the development of social capital and cultural capital in Suphanburi Province. They were the target group for organizing brainstorming workshops and hearings, considering the factors affecting the use of social capital for sustainable community development.

3. The instrument used for data collection was a structured interview questionnaire on factors related to social capital and cultural capital of Suphanburi Province. In analyzing the data obtained from the above methods, the researcher analyzed the data by collecting data using qualitative research. Data collection consisted of document research and field data collection using observation techniques, small group meetings and in-depth interview methods. Therefore, the researcher could use the information obtained as a guideline for analysis and inductive conclusions. Therefore, this

research would apply the concepts and theories from the literature review and related research in Chapter 2 to explain events and phenomena in community development.

research results

1. A strong community from the past to the present of Suphan Buri Province

Suphan Buri Province is one of the provinces in the western central region of Thailand. Located on the plains of the Tha Chin River. or the Suphan Buri River flows along the length of the province from north to south. Most of the area of Suphan Buri Province is used for rice farming. There are important rivers that flow from the north to the south, such as the Tha Chin River or the Suphan Buri River. Most of the population is engaged in agriculture.

2. Processes and methods for managing social capital and cultural capital and the development of strong communities in Suphanburi Province

physical and social context

Tha Chin River or Suphan Buri River is considered the lifeblood of Suphan Buri Province in terms of country, economy, society and culture. The social condition is humble and generosity. It is semi-urban, more rural than the city. There are ties with relatives, a society that is not very strict about discipline.

Economic/Occupational Characteristics

Most of the population is engaged in agriculture. which are widely distributed in every district, followed by trade occupation, civil service occupation Employees and general contractors The important economic animals are pigs, cattle, buffaloes, chickens, ducks, shrimp and freshwater fish. Able to earn several billion baht per year in Suphanburi province. For the industrial sector, it is mainly related to the production in the agricultural sector, such as sugar mills, agricultural processing plants and others.

Tradition

Suphan Buri Province is an old province that consists of Thai people of many nationalities. Therefore, there are various customs. In addition to the basic traditions that are the same as other localities or provinces, such as New Year's Day traditions Songkran tradition, ordination ceremony, wedding ceremony, Loy Krathong tradition, funeral ceremony, etc.

personal

In Suphan Buri Province, there are people who are alert and want to be a strong community that can support themselves when the economy is going backwards. Driving strong communities has been a topic of discussion for a long time. but still unable to achieve results, both public and private support

Management

Suphan Buri Province is ready in many ways.

There are both government and private agencies to help and support in various fields.

3. Problems and obstacles of the process and methods of managing social capital and cultural capital and the development of strong communities in Suphanburi Province From the Covid-19 situation that has spread throughout Thailand, it has greatly affected Suphanburi province in terms of trade, investment, tourism, education. Tourism has a high impact. Tourists fell by 60 percent, and merchants and vendors were facing serious problems. There is also an impact on employment in Suphanburi province. Small companies or shops have to close themselves because they can't bear the cost.

V. DISCUSSION

The above important issues can be brought to the discussion as follows.

1. In the study of the strong community of Suphanburi province, it was found that Suphan Buri Province is still mostly agricultural area. Most of the people living in the area are engaged in agriculture such as farming, farming and gardening. The following occupations are trading, work as employee, and other occupations. The social character of the people in Suphan Buri Province is that the people have a relatively simple life. This can be considered from the fact that the majority of the population is engaged in agriculture and the use of temples as the center of religious ceremonies. Villagers still have a good familiarity and unity in various activities together such as Songkran Festival, Loy Krathong Festival, New Year's Day or important Buddhist festivals. In addition, local wisdom, natural resources, important tourist attractions are the cost of building community strength. Consistent with the concept of Kamolsak Wong Sri Kaew (2017) studied the development of strong communities: Case Study of Poon Bamphen Community, Phasi Charoen District. It was found that the strong community characteristics of the Poonbumpen community were reflected in the self-reliance, security, safety, vision and love and cherishing of the community. There are factors contributing to the strength of the community, such as kinship social relationships, characteristics of learning for life, community networks, leaders and self-reliant economic characteristics of communities. Proposals for community development towards a sustainable community include continuation of agricultural land conservation, raising awareness of new entrants, creating continuous community development activities, proactive community public relations and finding new leadership network groups to continue the mission.

2. In the study of processes and methods of social capital management and cultural capital and strong community development in Suphanburi province, it was found that Suphan Buri Province is an old province that consists of Thai people of many nationalities, so there are many traditions (cultural capital). In addition to the basic traditions similar to other localities or provinces, such as New Year's Day traditions, Songkran traditions, ordination ceremonies, wedding ceremonies, Loi Krathong traditions and funeral ceremonies contribute to the solidarity of the people in the community. This is consistent with the research of Sakkapat Saengchai (2014) who studied social capital and community development in Bang Nang Li, Amphawa District, Samut Songkhram Province. It was found that Bang Nang Li Sub-district has much outstanding social capital in each aspect. Cultural capital is a Buddhist culture that has been passed down from generation to generation. For example, on Asanha Bucha Day and Buddhist Lent Day, people bring candles and offerings to monks and practice dharma. Songkran Festival tradition, which is a beautiful activity passed on from generation to generation. In this tradition, there is a watering ceremony to pray for blessings from the elders to create a connection between the members in each village and become familiar with each other like family and practice until it becomes the identity of the community and eventually the strength of the community.

3. Problems and obstacles in the process and methods of managing social capital and cultural capital and strong community development is the epidemic of the COVID-19 pandemic throughout Thailand at this time. Suphan Buri Province plans to seriously prepare to deal with the COVID-19 outbreak and the province has received active support and cooperation from government and private agencies. Due to civilization and urbanization into the community, land prices have risen. Some villagers agree to sell their land and change their occupation and lifestyle, thus affecting their unique way of life. The uniqueness of the people of Suphan Buri Province linked to the above problem is consistent with the concept of Daniel (1999, pp. 183 -185) in the sense that social change is caused by natural changes and human-made changes. In the process of change, two forms of change may occur:

1. Linear change is a social change in the form that all societies have the same evolution, that is, the transition from a civilized society to a more advanced civilization society. Scholars who presented this model of linear social change were Auguste Comte, Henry Morgan and Karl Marx.

2. Cyclic changes are social changes that are not uniform. Society must start from the beginning, and then gradually progress until the highest point will decay. It can be seen that

social change is one of the most important changes in the cycle; when society changes, it often causes problems. It is important that people in the community cope with such changes and maintain the strength of the community. This is consistent with the research of Komon Yenpiam (2015) which found that people in the community must participate and cooperate in solving problems in order to maintain their strong community forever.

Recommendations

In studying the development of strong communities based on social capital and cultural capital in Suphan Buri Province, the researcher has the following recommendations:

1. General recommendations

1.1 At the individual and community levels, development must be emphasized without affecting the traditional way of life of the community or, if unavoidable, with minimal impact. However, the development of facilities should not be overemphasized until the identity of Suphan Buri province has changed because it lacks the charm of the province.

1.2 The collection of information about the social and cultural dimensions of the local community should be directed by specialized staff and should be kept in an information system and always updated for the convenience of searching for information about Suphan Buri Province such as dialects, tourist attractions, local food, accommodation and travel.

1.3 Networks should be created to exchange information between communities with similar potential to be a shared learning resource, trading group and investment group such as Nakhon Pathom Province, Kanchanaburi Province and Pathum Thani Province. This is to obtain information on new developments or creating more diverse activities.

1.4 There should be greater distribution of job creation and income generation among local people. As Thailand is facing problems with Covid-19 causing many people to lose their jobs and have no income, they have to return to their homeland. Creating a job will improve the economy at the community level and also reduce the problem of crime

2. Policy recommendations

2.1 Government agencies should pay more attention to tourism among Thais and foreigners because there are still some people who do not know the strengths of religious places and many interesting cultural traditions in Suphan Buri Province.

2.2 Relevant agencies should give priority to the development of strong communities based on social capital and cultural capital of the old community in order to survive until the next generation to be useful for the further development of the community. They should also think about creating a new

generation of leaders to carry on these good and valuable things.

3. Recommendation for further research

3.1 Research should be done on the appropriate management model and promote the development of Suphanburi Province in the future in the sense that "How should the direction or pattern be developed?"

3.2 There should be more study of approaches or solutions to problems of developing strong communities based on social capital and cultural capital in the area such as visits to religious sites, visits to traditions and culture in various festivals to serve as a database for further promotion to develop the strength of the community

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The Composition Consistency Between The Synonymous Khmer and Thai Vocabularies

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Abstract— Research paper on the composition consistency between the synonymous Khmer and Thai vocabularies has the objective to identify the consistency between Khmer and Thai vocabularies that are used in the same meaning by descriptive method. The researcher used the Khmer vocabulary data from Luem Peng Khmer-Thai dictionary, the 2010 edition to compare with the Thai vocabulary in the dictionary of the Royal Academy Year 2554 from the letter *n-a*. The study showed that both Khmer and Thai language have similar characters that consonants and vowels are the same. The difference is that the Thai language has a tonal form, but the Khmer language does not. Therefore, this study analyzed the consistency in the beginning of the vowel and the corresponding spelling by eliminating the tonal matter.

The results of the study showed that there are 656 Khmer and Thai vocabularies that are used in the same meaning and have the consistency form of consonants, vowels and spelling which can be classified the consistency into 2 aspects as follows: 1) the vocabulary that is completely consistent in the vocabulary form, and 2) the vocabulary that has partial correlation in the vocabulary form. There were 384 vocabularies that are completely consistent in the vocabulary form and 272 vocabularies that were found to be partial correlation in the vocabulary form. These findings indicated that there are many Khmer and Thai vocabularies with the consistency of word composition and has the similar meaning.

Keywords— Khmer word, Thai word, synonymous word.

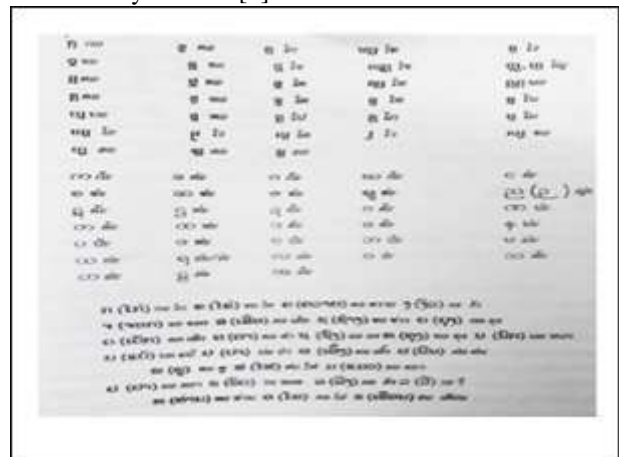
I. INTRODUCTION

Thai and Khmer are the language categorized in the same family of monolithic language [1] which is in line with [2] Cham Thongkamwan who said that "Khmer language is a monolithic language in the Mon-Khmer family". This shows that Thai and Khmer languages are the same or similar that there are words that are synonymous with the most original words. The complementing of words into sentences is also the same with a synergy in history as well.

In terms of the alphabet, it was found that the Khmer alphabets are similar to those of the Thai.[3] Jutharat Lueangnak said that Khmer alphabets are the same as Thai , Lao , Burmese , Ancient Mon and the ancient Java alphabets. This is because these alphabets are patterned from the ancient Phon Mee alphabets which were transferred to southern India. Initial alphabets discovered around Southeast Asia are considerably similar to the found one in initial Pallava empire, whose capital was Kanchi, on the Coromandel coast of India. This set of Pallawa alphabets were broaden throughout Southeast Asia.

The 4 languages that used the alphabets developed from the Pallava alphabets are Khmer, Thai, Burmese and Lao. Apart

from their own alphabet, Romanization alphabets were used internationally as well. [4]



Khmer, Myanmar and Lao alphabets picture (From Thai language teacher training documents to ASEAN 19-20 November 2014, 59)

Khmer language has been associated with Thai language since ancient times. There was a reception and exchange of used vocabularies all the time. Such vocabularies are used and blended in the borrower's language that sometimes the users are hardly aware that the vocabularies they are using is in their own language or borrowed from another language. Only the

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Khmer vocabularies borrowed by Thai people that are included in the Thai dictionary of the Royal Institute of Thailand, both in 1939 and 1992 are approximately 400 vocabularies without counting the vocabularies that the dictionary has not been contained or recorded but to be appeared in various evidence such as inscriptions and literature, which there are many more. If all vocabularies are gathered, the borrowed Khmer vocabulary in Thai language will be as many as three or four thousand vocabularies in total. [5]

[6] Prasong Thongpra studied vocabularies that are consistent in Thai and Khmer languages by comparing the Thai Dictionary of the Royal Institute of Thailand, 1982 with the Khmer Dictionary of the Graduate School of Buddhism, Part 1, 1968, the Khmer Dictionary of the Graduate School of Buddhism, Part 2, 1969, and the Khmer-Thai Dictionary, Phraya Anuman Ratchadon's Edition, Volume 1, B.E. 1973, Volume 2, 1978, Volume 3, 1980, Volume 4, 1982 and Volume 5, 1985, found 297 words that were consistent in form, sound and meaning.

In the Beginner Thai books for Cambodians[7], Sombat Sirijanda compared the consonants and vowels between Thai and Khmer languages as follows:

ก	ข (ข)	ค (ค)	ด	ง
ช	ฉ	ฉ	ญ	ฎ
จ	ฉ	ช	ฉ	ฎ
ฉ	บ	ช	ฉ	ฎ
ฎ ฏ	ร	ร	พ	ณ
ค	ช	ร	ฉ	ร
ด ด	ถ	ร	ฉ	น
บ บ	ฉ	ฎ ฏ	ค	ช
บ บ	ผ ผ	พ พ	ภ	ม
ย	ร	ล	ว	ล
ย	ร	ล	ว	ล
ส ส	ท	ฎ	ห	ท
ส ส	ท	ฎ	ห	ท

รูปสระไทย	รูปสระเขมร	รูปสระไทย	รูปสระเขมร
อะ	หะ	อา	ภา
อิ	หิ	อี	หิ
อึ	หึ	อึ	หึ
อุ	หุ	อุ	หุ
เอะ	เห	เอ	เห
แอะ	-	แอ	ไห
โอะ	-	โอ	เภา
เอาะ	เภา	ออ	-
อัวะ	-	อัว	หุ
เอื้อะ	-	เอื้อ	เหจ
เอื้อย	-	เอื้อย	เหจ
อำ	หำ	ไอ	ไห
เอา	เภา	ฤ	บุ
ฤ	บุ		

From this reason, the authors are interested in studying the relationship between the same or similar words used in the same meaning between Thai and Khmer languages in order to be useful for those who are interested in further study.

II. RESEARCH OBJECTIVES

To classify the consistency between the synonymous Khmer and Thai vocabularies

III. RESEARCH METHODOLOGY

The researchers conducted the research through documentary research method with the following steps:

1. Determine scope of research

- 1.1 Studied Khmer and Thai vocabularies that are consistent
- 1.2 Collected Khmer vocabularies from the 2010 Luem-Peng Khmer-Thai dictionary and compared the meanings with the Thai dictionary at the Royal Institute of Thailand 2011.
- 1.3 Analyzed the synonymous vocabularies by considering the vocabularies composition from the initial consonants, vowels and spelling, and compared with the composition of the corresponding Thai vocabularies based on their meaning.
- 1.4 Phonetic transcriptions from Khmer to Thai languages were taken from the Thai-Khmer dictionary. Thai-Cambodia Joint Commission [10] mainly to promote cultural cooperation
- 1.5 In the event that the vocabularies in Thai have many meanings, only the meanings that are used in the Khmer language will be selected.

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2. Data Collection from following documents

- 2.1 Khmer - Thai Dictionary (Luem Peng, 2010)
- 2.2 Thai Dictionary, Royal Institute of Thailand 2011 (Royal Academy, 1013)
- 2.3 Thai - Khmer Dictionary: The issue of the Joint Commission of Thailand - Cambodia. (Thai-Cambodian Cultural Association Committee: 2007)

3. Data analysis procedure

- 3.1 Categorized the consistency of such vocabularies by considering the vocabularies composition from the initial consonants, vowels, spelling and meaning of synonymous vocabularies
- 3.2 Analyzed the words that are consistent to find the consistency in various issues.

4. Data Verification

- 4.1 Proposed the data from the analysis to 2 native speakers to verify the accuracy of the information
- 4.2 Corrected and modified the data according to the advice of experts
- 4.3 Proposed the revised data and verified by a professional again
- 4.4 Presented research papers

IV. RESEARCH RESULTS

An exploration of 16,840 vocabularies from the Khmer-Thai dictionary, Luem-Peng 2010 edition, found 656 Khmer vocabularies with composition consistency to Thai vocabularies in the Royal Thai Dictionary, 2011 edition. The analysis found that consistency was separated into 2 aspects as the completely vocabularies consistency in form and vocabularies that are partly consistent with forms. 384 vocabularies were found to be completely consistent and 272 vocabularies were found to be partly consistent. The results of the analysis were as follows.

1. Thai-Khmer vocabularies with completely consistency in composition refer to Thai and Khmer vocabularies that have the same consonants, vowels, spellings and meaning. They were found in the number of 384 in this study and some of them are presented as an example in Table 1

Table 1 Thai-Khmer vocabularies with completely consistency in composition

ที่	คำ ภาษา เขมร	คำ อ่าน	ความหมาย	คำ ภาษา ไทย	คำ อ่าน	ความหมาย
1.	កាម	กาม	(น.) กาม, รกษะ	การ	กวม	กาม, กาม- [กามปะ-] น. ความ ใคร่, ความใคร่หาภพ (น., ส.).
2.	ងាយ	เจ็ย	(ก. ฎ. หรือ กุ.) ง่าย, สะดวก	ง่าย	ง่าย	ว. สะดวก, ง่าย...
3.	ចិត្តា	เจ็น- ตา	(น.) ความคิด	จิตตา	จิน- ตา	(1) น. ความคิด, ความนึก
4.	ផ្កាត	จะ- หลาด	(อ.) ฉลาด, ว่องไว	ฉลาด	จะ หลาด	[จะหลาด] ว. ฉลาดเฉลียว, ไหว ไหว, ทรู, ใญ่, ใญ่, (น. ฉลาด, ฉ ลาด).
5.	រៀន	เรียน	(ก.) เรียน, ศึกษา, ปฏิบัติ, ฝึก	เรียน	เรียน	ก. เข้าใจ, ความรู้จากผู้อื่น, รับ การฝึกฝนอบรมเพื่อให้มีความรู้ ความเข้าใจหรือความชำนาญ, เช่น เรียนหนังสือ เรียนวิชา ความรู้, ฝึกให้มีความรู้ความ เข้าใจจนเป็นหรือมีความชำนาญ เช่น เขารียนแม่พิมพ์ด้วยตนเอง

From Table 1, it was shown that Thai and Khmer vocabularies have forms that are consistent in all parts, that is, they are consistent with both initial consonants, vowels, and ending consonants (spellings), and the finished word compositions are consistent in the same forms, for example:

កម(กาม) กับ กาม

Khmer vocabulary consists of initial consonant ក(ก)vowel(อา)ending consonant(ม)

Thai vocabulary also consists of initial consonantกvowelending consonantม

ងេយ(เจ็ย) กับ ง่าย

The analysis of this pair of words showed that all the corresponding words are composed, namely

Khmer words consist of an initial consonant ង(ง), a vowel(อา), an end consonant យ(ย)

Thai words also consist of the beginning consonant d, the vowel ah, the consonant at the end.

ចិត្ត(เจ็น-ตา) กับ จิตตา

The analysis of these pairs showed all the composition consistency of vocabularies are:

Khmer vocabulary consists of initial consonant ច(จ), vowel(อ), ending consonant(น)

Thai vocabulary also consists of initial consonantจ, vowelอ, ending consonantน

ផ្កា(จะ-หลาด) กับ ฉลาด

From the analysis of these pairs, it can be seen that all the composition consistency of vocabularies are:

Khmer vocabulary consists of initial consonant គ,ឆ,វowel ាending consonant ត.

Thai vocabulary also consists of initial consonant ก,ข,ค,ending consonant ฅ

ក្បួន(เรียน) กับเรียน

The analysis of this pair of words showed that all the corresponding words are composed, namely Khmer words consist of an initial consonant គ, vowel េ, and a ending consonant ត

Thai words also consist of the first consonant ฅ, vowel, ะ, and the last consonant ฅ.

1.2 Vocabularies with partly consistency in composition refer to Thai words and Khmer vocabularies that have the initial consonants, vowels and ending consonant which is partly similar as an example in Table 2

Table 2 Vocabularies with partly vowel consistency

ที่	คำภาษา เขมร	คำ อ่าน	ความหมาย	คำ ภาษา ไทย	คำ อ่าน	ความหมาย
1.	កង	กอน	(น.) กองทัพ	กองทัพบก	กอน	กองทัพบก น. หน่วยทหารที่ประกอบด้วย พล ทหาร ๓ กองพล และมีทหารหน่วยอื่น ๆ เช่น หน่วยทหารช่าง หน่วยทหารสื่อสาร หน่วยทหารรถถัง หน่วยทหารปืนใหญ่ เป็นส่วนประกอบ มีแม่ทัพเป็นผู้นำบังคับบัญชา.
2.	កួយទារ	กวย เตียว	(น.) ก้วยเตียว	ก้วย เตียว	ก้วย เตียว	ก้วยเตียว น. ชื่อของกินชนิดหนึ่ง ทำด้วยแป้งข้าวเจ้าเป็นเส้น ๆ ลวกสุกแล้วปรุงด้วยเครื่องปรุงเป็นต้น (จ).
3.	ចាប់- គោយ	จับ- ถาย	(น.) จับถาย (ฆ้อง จีน)	จับถาย	จับ- ถาย	(1) น. ชื่ออาหารว่างชนิดหนึ่งที่มีไส้ถั่วเขียว ๆ ย่าง (น.).
4.	ដួង	ขี้อล	(ก) ปรหมสาใจ, สนเท่ห์, ฆ	ฉงน หม	ฉง- หม	[ระหมง] ก. สงสัย, ไม่แน่ใจ, คลั่งใจ.
5.	អួត	อวด	(ก.) อวดดี, อวด, พูดเกินความจริง	อวด	อวด	ก. สำแดงให้รู้เห็น เช่น อวดฤทธิ์อวดเดช, แสดงให้ปรากฏ เช่น อวดความสามารถ, นำออกให้ดูให้ชม เช่น เขาพูดอวด, ยกย่องต่อหน้าคนอื่น เช่น เขาว่าลูกดีกว่า, แสดงให้ผู้อื่นเข้าใจว่าตนมีคุณมีดีเช่นนั้น ซึ่ง ๆ ที่มิได้มี เช่น อวดดี อวดภูมิ.

Table 2 showed Thai and Khmer vocabularies with partly consistency in composition. That is, Thai and Khmer vocabularies have the initial consonants, vowels and ending consonant which is partly similar such as កង(กอง) andกอง

From the analysis of these pairs, it can be seen that the composition of vocabularies are consistent, i.e. the same initial and ending consonants. The Khmer word has no vowel

form, but it is pronounced as a vowel อก as the accent or consonant as อก for กอง just like Thai vocabularies.

Khmer vocabulary consist of initial consonant ក, No vowel ending consonant ត

Thai vocabulary consist of initial consonant ก, vowel ะ ending consonant ฅ

កួយទារ(กวย-เตียว) andก้วยเตียว

From the analysis of these pairs, it can be seen that there are composition consistency of vocabularies. Khmer initial consonants use គ, ឆ (โก and โค), which are compared to the Thai consonants ก and ค and the ending consonants are the same. Vowels ុ, ๓ (อ and ะ: Khmer grammatical form and vowel) with tonal form in Thai but not in Khmer language

Khmer vocabulary consist of initial consonant ក, vowel, ា ending consonant ត, ឆ

Thai vocabulary also consist of initial consonant ฅ, ค, vowel ะ, ัว, ะ ending consonant ฅ, ๓

ចាប់គោយ(จับ-ถาย) andจับถาย

From the analysis of these pairs, it can be seen that there are composition consistency of vocabularies the beginning consonants of Khmer words គ, ឆ (จ and ก), and the consonants consistent to each other ๓, ๓ (น and ย). The difference is in the vowel form that Khmer words use the vowel ๓ (๓), ๓ (vowel form. ๓) is a vowel อก with the Khmer spelling. Compare with the Thai word, that is, Mai Han Akat and the suffix vowel form is อก

Khmer vocabulary consist of initial consonant គ, ឆ, vowel ๓ (๓), ๓ ending consonant ๓, ๓

Thai vocabulary also consist of initial consonant ฅ, ๓, vowel ะ, ๓, ๓ ending consonant ๓, ๓

ដួង(ขะ-จ้อล) and ฉงน

From the analysis of these pairs, it can be seen that there are composition consistency of vocabularies i.e. the same initial consonants without vowel. The difference is that the consonants at the end of the Khmer language use ฅ (๓ but in Thai as ฅ with the same sound)

Khmer vocabulary consist of initial consonant គ, ឆ, ๓ without vowel and ending consonant ๓

Thai vocabulary also consist of initial consonant ฅ, ๓, ๓ without vowel and have ending consonant ๓

អួត(อวด) andอวด

From the analysis of these pairs, it can be seen that there are composition consistency of vocabularies i.e. the same initial and ending consonants with different vowels. The difference is in the shape of the vowel that Khmer vocabularies use the vowel e_g (Hua vowel form) of the Khmer language) whereas Thai vocabularies end with a vowel form.

Khmer vocabulary consists of initial consonant h , vowel e_g , ending consonant h .

Thai vocabulary also consists of initial consonant h , vowel a , ending consonant h .

V. DISCUSSION

The analysis found the vocabularies with form consistency between synonymous Thai and Khmer vocabularies which can be separated into 2 categories as the completely vocabularies consistency in form and vocabularies that are partly consistent in forms.

The reason why Thai and Khmer vocabularies have the same composition is probably because the alphabets in Khmer are similar to the Thai's. As [3] Jutharat Lueangnak said that "Khmer alphabets are the same as Thai, Lao, Burmese, Ancient Mon and the ancient Java alphabets. This is because these alphabets are patterned from the ancient Phon Mee alphabets. This is in line with [4] Nittaya Kanjanawan who mentioned the comparison of the alphabet of the languages used in ASEAN countries that the 4 languages that used the alphabets developed from the Pallava alphabets are Khmer, Thai, Burmese and Lao. These languages, apart from their own alphabets, also have Romanization system of writing to be used internationally as well. When comparing the alphabet data, it can be seen that the characters of Thai and Khmer alphabets have similar characteristics which these alphabets evolved from the same Pallava alphabet.

The composition of some vocabularies in Thai and Khmer languages have the same consistency that some vocabularies may be called the same vocabularies. This is because the similarities of both forms and pronunciations is the same including the usage. For example, bend , not upright and deflect / bend / (Adv.) bend , not upright and deflect / bend / (adj.) $\text{Deflects or deviates from a line to a particular direction, such as northeast, southeast, cover skewing sabai clothes}$ $\text{rude, impolite, scumand}$ in Thai rude, vile . rude, vile / rude, vile / (v.)

1. $\text{inscribe, write with Thai vocabulary}$ write / write / V. $\text{to write or inscribe as a deep mark in a letter or image, etc., on a stone, metal or soil, etc., by implication, meaning similar characteristics, such as inscribed in the heart, in the poem generally means to write, or}$ consultation

and Thai vocabulary consultation / consultation / V. To consult, to ask for suggestion, to discuss, to debate, e.g. a consultation meeting, to consider a draft judgment such as a counselor (in court). (consultation).

Both Thai and Khmer vocabularies with consistency were used in the same meaning. This may be caused by languages in the monolithic family and have been related to each other since ancient times. Both Thai and Cambodia may have relationships in many dimensions, including politics, economy, government, religion, culture, way of life, and traditions that are so similar that it can be called "share the same common roots". This is consistent with Kanchana Naksakul (1981, foreword) said that Khmer vocabularies have been mixed in a lot of Thai language because of their contact in history and culture throughout the long history of Thailand and Cambodia. In addition, [3] Jutharat Luenak said that these two countries seem to have something in common since in terms of vocabularies, alphabets, religion, as well as customs and traditions. This is because the Khmer and Thai people have been connected for a long time and have always conveyed their culture to each other. This opinion is consistent with the opinion of [5] Anan Areephong that Khmer language has been associated with Thai since ancient times, and the vocabularies has been accepted and exchanged all the time. Those terms were used to blend in with the borrower's language until sometimes the users are hardly aware that the vocabulary that they are using is in their own language or borrowed from another language, only the Khmer vocabulary that Thai borrowed is contained in both the 1950's and 1982 the Royal Institute's dictionaries approximately 400 words, not counting the words that the dictionary has neither contained nor recorded. [11] Katanyu Chuchuen said that Thailand and Cambodia have been in a relationship for thousands of years. They all inherited each other's culture and civilization where the most notably is language culture.

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The Needs Assessment of Restaurant Services in Thailand's East Coastal Areas during COVID-19 Pandemic with SERVQUAL-MODEL

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Abstract— *The needs assessment of restaurant services in Thailand's east coastal areas during COVID-19 pandemic with SERVQUAL-MODEL has purposed 1) To study desirable conditions of restaurant services in East coastal areas. 2) To study real conditions of restaurant services in East coastal areas. 3) To assess the needs of restaurant services in East coastal areas during COVID-19 pandemic with SERVQUAL-MODEL. The 400 of questionnaires were accumulated data, focusing on consumers who had experienced with service of restaurants located in East coastal areas (Chon Buri Province, Rayong Province, Chanthaburi Province and Trat Province). The analysing of this study has been carried out Frequency, Percentage, Mean, Standard Deviation (S.D.) and PNI modified method.*

The results reveal that 1) Overall opinions of correspondents in desirable conditions of servicing of restaurants in East coastal areas are in the highest level. 2) Overall views of those customers in real conditions of servicing of restaurants in East coastal areas is in the high level. 3) The assessment of customers' need in restaurant services in East coastal areas during COVID-19 pandemic with SERVQUAL-MODEL presents that there the overall of the needs of servicing of restaurants in East coastal areas as PNI modified = 0.23.

Keywords— *The Needs Assessment, Restaurant Services, East Coastal Areas, COVID-19*

I. INTRODUCTION

Thailand has been experiencing with an unprecedented situation of highly transmissible virus as Coronavirus (COVID-19) since emerged in late 2019. The virus affects the country in different ways such as public health, economic downturn. It can be clearly seen that the spreading of COVID-19 negatively caused service businesses, especially, domestic service sectors because it is businesses that confront with the large number of customers. According to the effected predictions, the world's economy is carrying on recession at 3.2 percent and ASEAN shrinks to at roughly 2.1 to 5.4 percent. Thailand's economy is anticipated having more severe impact of the Coronavirus pandemic, shrinking by at least 5.4 percent. Particularly, its tourism sector that will have the huge impact by decreasing of the large group of domestic and international tourists at about 60 percent. Lacking demanded and supplied chain are playing a key role of Thailand's economic downturn.

The firms which are in Thailand have capable of maintaining its circulations and profits, some may have significant decrease in profits and capital investment, however, companies which have ability to reserve its high liquidity in

order to toughly pass on this current situation. By 2021, the firms in service businesses as restaurants, airlines and hotels are experiencing in a hard time because the entrepreneurs expect to inadequately pay the debts, rising to 39 percent from the pre-pandemic. In terms of small hotels and airlines business, the owners demand to increase their liquidities by 35 percent and 27 percent consecutively. The major provinces are speculated for having trouble with its own financial such as Samut Sakhon Province, Chon Buri Province and Chanthaburi Province as a result of those areas are the majority city in tourism. Furthermore, Bangkok city, there is a great number of companies that are encountering with financial crisis, increasing to 20.6 percent which it is a potential sign of their default increased that it can be caused multiply negative on its economy due to reduction of employments and lowered household income. (Manprasert, 2021).

Taking place of COVID-19 crisis has directly affected on almost all businesses, restaurant is one of those businesses in Eastern region of Thailand are likewise impacted by spreading of novel virus because East Coastal Areas has significantly promoted as Thailand's major tourism destination, the areas are able to generate a large amount of revenue to the country by tourist expended on services. In

consonance with Thailand's preventing measurement, the Government has imposed on service sectors in nearly entire country to temporarily closed for preventing infection of decease. Even though, some periods of time, service businesses allowed operating with measures on making social distancing. Including customers' trust gained and acceptance of using restaurant services. The behaviours of customers changed from the past as enabling of new technology that they have capable of connecting in clouding network such as Food delivery ordered by smartphones. It conveniently and rapidly allows consumers to access shops or restaurant and queuing free. Moreover, applications are employed the system called POS (Point of Sell) through the internet network on smartphones, for example, Eatigo that it grants customers reviewing on restaurant's menu and able to reserve table if desired and its customers will be offered satisfactory rate of foods or the service of restaurants itself. (Department of Business Development, Ministry of Commerce of Thailand, 2019).

The studying and assessing needs are one of research method that allows researcher capable of capturing concept of effective operating, comparing the desirably needed circumstances or opinion of stakeholders that it also able to state that the needs assessment is a process of accumulating information in order to analyze differentiation between expectations and realities and to reorder altered importance. (Wongwanich, 2007). As result of study that it is able to essentially adapt to organizational management and to create competitive advantages.

Therefore, in accordance with the states mentioned above, researchers of this research on the needs assessment of restaurant services in Thailand's east coastal areas during COVID-19 pandemic with SERVQUAL-MODEL expected to be resulting of study will be benefit to restaurants in Eastern region and to promoting its higher standards of serving during Coronavirus pandemic towards creating prospect and achievement in the restaurant business operation.

II. OBJECTIVES

- 2.1 To study desirable conditions of restaurant services in East coastal areas during COVID-19 pandemic.
- 2.2 To study real conditions of restaurant services in East coastal areas during COVID-19 pandemic.
- 2.3 To assess the needs of restaurant services in East coastal areas during COVID-19 pandemic with SERVQUAL-MODEL.

III. MATERIALS AND METHODS

Quantitative Research was conducted in this study which cohered to the objectives of the study according to the following methods:

3.1 Population and Sample

3.1.1 Research Population

The consumers who had experienced with service of restaurants located in East coastal areas.

3.1.2 Research Sample

The 400 of consumers who had experienced with service of restaurants located in East coastal areas was accumulated through questionnaires filling, with infinite population formula of W.G. Cochran (1953), and the 95% of reliability and 0.05 of the errors were employed to verify the data. Multi-stage sampling was conducted to obtain sample size as consecutive methods:

1. This research had divided sample groups into 4 provinces where it is located in Eastern regions of Thailand, comprised of Chon Buri Province, Rayong Province, Chanthaburi Province and Trat Province.
2. The researchers had determined the area ratios in order to equally divide samples in each group. Therefore, 100 of those correspondents of each province were collected to in total 400.
3. Gathering data in 4 provinces by choosing any districts with lottery method. On account of this, the 50 correspondents were selected in each 2 districts by accidental sampling for accumulation to reach 400 sample groups.

3.2 Research Scopes

3.2.1 Scope of Research Content

The SERVQUAL-MODEL which invented by PARASURAMAN was employed to study and to assess the needs of restaurant services in East coastal areas during COVID-19 pandemic, related to concepts and theories of Tangible, Reliability, Responsiveness, Empathy, and Assurance.

3.2.2 Scope of Research Area

The 4 provinces located in Eastern coast of Thailand were targeted as research area consist of Chon Buri Province, Rayong Province, Chanthaburi Province and Trat Province.

3.3 Research Methods

3.3.1 Research Tools

According to the quantitative research, 400 of questionnaires were carried out for collecting data from consumers who had

experienced with service of restaurants located in East coastal areas. The questionnaire has 3 structures as follows:

Part 1: Correspondent's demographic profile which it has for 7 main opened-questions such as gender, educational level, occupation, monthly salary and province of restaurant service using.

Part 2: Questions regard to desirable conditions and real conditions of restaurant services in East coastal areas during COVID-19 pandemic which used the 5 Rating Scales of Likert as assessing criteria as 5 means desirable conditions or real conditions in the highest level, 4 means desirable conditions or real conditions in high level, 3 means desirable conditions or real conditions in medium level, 2 means desirable conditions or real conditions in low level and 1 means desirable conditions or real conditions in the lowest level

Part 3: Additional recommendations as opened-question.

3.3.2 Research Tool Validation

- 1) The experts in business sectors evaluated the correction and precision of each question.
- 2) The developed questionnaire was thoroughly assessed by 3 academic experts in order to consider the relation between question and research purposes, by using The Item-Objective Congruence (IOC) method. Each question which has its range 0.67 to 1.00 was specifically selected and amend other questions as those experts recommended.
- 3) As research tool's piloting test, there 30 questionnaires were conducted to gather data with the identical research samples in order to find a reliable analysis. Therefore, the reliability of this questionnaire was 0.92.

3.3.3 Data Analysis

1) Descriptive statistics were used to describe the frequency distribution data, percentage of correspondent's demographic profiles, mean score and standard deviation were applied to analyze the statistical data as desirable conditions and real conditions regarding restaurant services in East coastal areas during COVID-19 pandemic. The criteria for interpreting meaning of average data of Srisa-Ard (2017, p. 102-103) was utilized as 4.51-5.00 means desirable conditions or real conditions in the highest level, 3.51-4.50 means desirable conditions or real conditions in high level, 2.51-3.50 means desirable conditions or real conditions in medium level, 1.51-2.50 means desirable conditions or real conditions in low level and 1.00-1.50 means desirable conditions or real conditions in the lowest level.

2) Data analyzing on the needs of restaurant services for rearranging level of correspondent's needs. In accordance with this state, the most of aspect is going to be developed

rapidly with technique of Modified Priority Needs Index (PNI_{modified}) by Wongwanich (2005, p. 18)

IV. RESULTS AND DISCUSSION

4.1 Results

In the study of the needs' assessment of restaurant services in East coastal areas of Thailand during covid-19 pandemic with SERVQUAL-MODEL purposed to study desirable conditions and real conditions of restaurant services of people who are in Eastern region of Thailand during COVID-19 pandemic and to assess the needs of restaurant services in East coastal areas during COVID-19 pandemic with SERVQUAL-MODEL. The study has been accumulated information from primary data and secondary data. The results of the quantitative data had been retrieved as questionnaires from consumers who had experienced with service of restaurants located in East coastal areas, consisted of the following results:

4.1.1 Correspondents Demographic Data.

The result can clearly be seen that most of the correspondents were females with 246 persons at 61.50 percent. The large number of those customers had range of age between 25-30 years old (125 persons: 31.25 percent), For the part of an education, great quantities of correspondents graduated with a bachelor's degree (310 persons: 77.50 percent). A great number of occupations of the passengers were private company officer (138 persons: 34.50 percent), Most of the correspondents earned monthly income about 25,001-35,000 Thai Baht (147 persons: 36.80 percent), they had had experienced with restaurant services in each province as Chon Buri Province, Rayong Province, Chanthaburi Province and Trat Province.

4.1.2 Results of desirable conditions and real conditions of restaurant services of people who are in Eastern region of Thailand during COVID-19 pandemic according to Table 1 and Table 2.

Table 1 Means and Standard Deviation (S.D.) of desirable conditions of restaurant services of people who are in Eastern region of Thailand during COVID-19 pandemic in overall and each aspect resulted.

No.	Servicing of Restaurants in East Coastal Areas	Mean s	S.D.	Ranking
1	Tangible	4.91	0.11	3
2	Reliability	4.87	0.18	5

3	Responsiveness	4.90	0.16	4
4	Empathy	4.93	0.11	2
5	Assurance	4.94	0.09	1
Total		4.91	0.08	

According to the Table 1, overall desirable conditions of servicing of restaurants in East coastal areas is in the highest level (Means = 4.92, S.D. = 0.08). Furthermore, the customers who had experiences with servicing of restaurants in East coastal areas have expectation in the highest level which can be ranked the highest average means is the Assurance (Means = 4.94, S.D. = 0.08), Empathy (Means = 4.93, S.D. = 0.11), Tangible (Means = 4.91, S.D. = 0.11), Responsiveness (Means = 4.90, S.D. = 0.16) and the lowest is Reliability (Means = 4.87, S.D. = 0.18) respectively.

Table 2 Means and Standard Deviation (S.D.) of real conditions of restaurant services of people who are in Eastern region of Thailand during COVID-19 pandemic in overall and each aspect resulted.

No.	Servicing of Restaurants in East Coastal Areas	Mean s	S.D.	Ranking
1	Tangible	3.81	0.29	5
2	Reliability	4.14	0.32	2
3	Responsiveness	3.87	0.33	3
4	Empathy	3.85	0.28	4
5	Assurance	4.22	0.38	1
Total		3.98	0.16	

Referring to the Table 2, overall real conditions of servicing of restaurants in East coastal areas is in the high level (Means = 3.98, S.D. = 0.16). In addition to the customers who had experiences with servicing of restaurants in East coastal areas have expectation in the high level which can be ranked the high average means is the Assurance (Means = 4.22, S.D. = 0.38), Reliability (Means = 4.14, S.D. = 0.32), Responsiveness (Means = 3.87, S.D. = 0.33), Empathy (Means = 3.85, S.D. = 0.28) and the lowest is Tangible (Means = 3.81, S.D. = 0.29) respectively.

According to the results of desirable conditions and real conditions of restaurant services of people who are in Eastern region of Thailand during COVID-19 pandemic as are shown on Table 1 and Table 2 can be illustrated as a graph figure below.

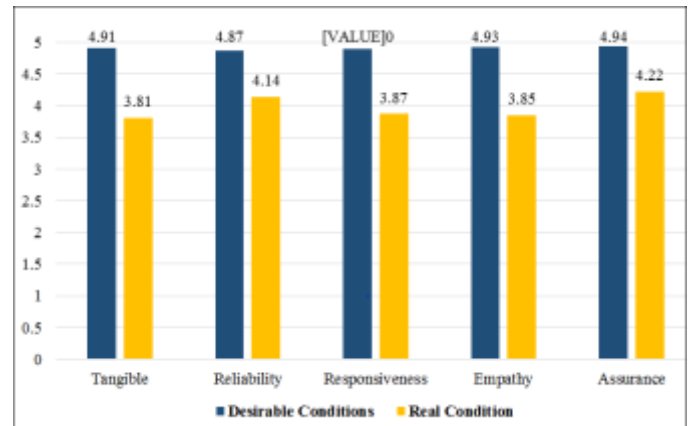


Fig. 1 Results of desirable conditions and real conditions of restaurant services of people who are in Eastern region of Thailand during COVID-19 pandemic.

4.1.3 Results of assessing the needs of restaurant services in East coastal areas during COVID-19 pandemic with SERVQUAL-MODEL as Table 3.

Table 3 The assessing the needs of restaurant services in East coastal areas during COVID-19 pandemic with SERVQUAL-MODEL.

No.	Servicing of Restaurants in East Coastal Areas	I	D	I-D	PNI	Percentage	Ranking
1	Tangible	4.91	3.81	1.10	0.29	29.00	1
2	Reliability	4.87	4.14	0.73	0.18	18.00	4
3	Responsiveness	4.90	3.87	1.03	0.27	27.00	3
4	Empathy	4.93	3.85	1.08	0.28	28.00	2
5	Assurance	4.94	4.22	0.72	0.17	17.00	5
Overall		4.91	3.98	0.93	0.23	23.00	

In consonance with Table 3, results of assessing the needs of restaurant services in East coastal areas during COVID-19 pandemic with SERVQUAL-MODEL. The needs assessment of restaurant services in East coastal areas during COVID-19 pandemic with SERVQUAL-MODEL reveal that there is the overall of the needs of servicing of restaurants in East coastal areas at 23.00 percent. Considering in each view found that the Tangible of quality is the highest need of customers, ranked the 1st is at 29.00 percent, Empathy of restaurant's staffs is at 28.00 percent, Responsiveness of its staffs is at 27.00 percent, Reliability of restaurant service is at 18.00 percent, and the lowest need of restaurants' customers is at 17.00 percent respectively.

As Table 3, the Modified Priority Needs Index (PNI_{modified}) has been ranked from the most to the least data as the concepts of Tangible, Reliability, Responsiveness, Empathy, and Assurance of restaurant services in East coastal areas during COVID-19 pandemic.

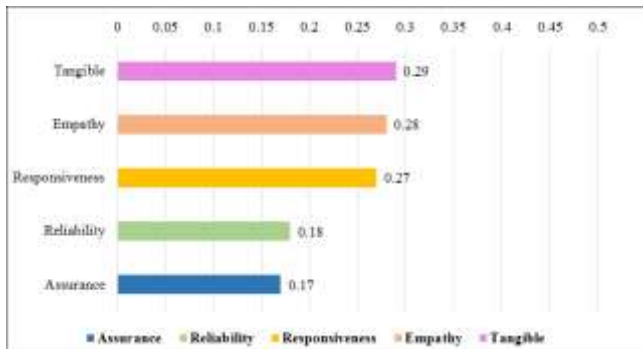


Fig. 2 Modified Priority Needs Index (PNI_{modified}) ranked the highest and the lowest data results.

The assessments of restaurant services needed of customers in Thailand’s East Coastal Areas during COVID-19 pandemic with SERVQUAL-MODEL shown that they desired restaurants have to create tangible of service qualities, together with well-managed.

The restaurants service to its customers with empathies. Furthermore, staffs of restaurants must have responsibility and can cope with problems effectively, it is able to support the business the gain reliability of customers during COVID-19 situation. Therefore, according to the data found that the new concept in terms of services called TERRA as figure 3.

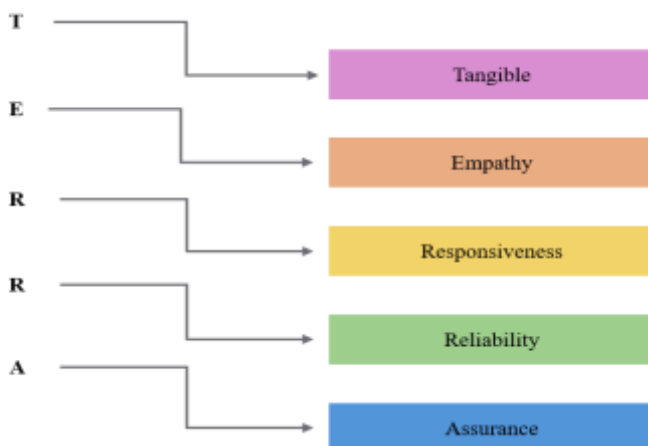


Fig. 3 The new concept of restaurant services during COVID-19. pandemic called TERRA.

4.2 Discussions

In accordance with the study of the needs’ assessment of restaurant services in Thailand’s East coastal areas during covid-19 pandemic with SERVQUAL-MODEL can be discussed as follows:

4.2.1 The studying of desirable conditions of servicing of restaurants in East coastal areas from correspondents’ opinion, overall is in the highest level. As far as the spreading of COVID-19 noticed that is one of the world’s deadliest

deceases. Hence, it has effect on Eastern consumers who visited restaurant which they expect to be safe from those business’s management that is coherent with study of Aussawariyathipat (2019, p. 80) found that customer’s decision-making on purchasing products and services whose they have choices to an individual selection. Furthermore, as Pitukmuangman (2019) researched on Factors Affecting to Success of Clean Food Delivery Store in Bangkok revealed that the factors of operating such as managing, marketing, operating and technology and financial have effects on clean food delivery stores’ management with statically significance. 4.2.2 According to real conditions of servicing of restaurants in East coastal areas from customers’ view, overall statistic’s result is in high level. Consequently, the needs of restaurant’s customers have their own view contrarily as what its service supported to be. As customers who have had ever experienced with travelling to tourist attraction places, they perceived service of restaurants managing and they also have previously studied on the Government measure to prevent COVID-19 differently. The previous study of Navaratana (2015, p. 203) stated that the excellency of service taken place when executive members of firm have capable of detecting and responding for the customers’ needs to create the most satisfied including establishment of high service standards as possible.

4.2.3 Results of the needs assessment of restaurant services in East coastal areas during COVID-19 pandemic with SERVQUAL-MODEL shown that there was the overall of the needs of servicing of restaurants in East coastal areas at 23.00 percent (PNI_{modified} = 0.23). Considering in each view found that the Tangible is the highest need of customers, ranked the 1st is at 29.00 percent (PNI_{modified} = 0.29) which indicate the Eastern people rapidly needed to receive its quality. Therefore, the restaurants’ owners are capable of develop service model which enable customers’ trust in all aspects as they use of the business service. The related study of Sae-Jung (2016) on Factors Affecting Success of The Franchise Business of Thai Noodle Restaurants in Chon Buri Province regarding product, food cleanliness, good taste of food, standard taste of food, physical characteristics comprised of cleanliness of its portions and cooking equipment, no congestion inside and restaurant is neat and tidy, convenient for human physical movement. Additionally, studying of approaches to restaurant service quality development for international tourists in Hua Hin, Prachubkirikhan Province presented the expectation of international tourists on restaurant services quality in mentioned area of Thailand is also in high level. (Boonpienpon, 2017). Furthermore, the study on food quality, service quality, physical environment, and health concern affecting Chinese tourists’ decision to

choose Thai restaurant services in Bangkok (Song, 2016) revealed that factors regard to reliability, empathy, and responsiveness were not affected on Chinese's making decision of Thai restaurants in Bangkok.

V. CONCLUSION

This paper presents the needs assessment of restaurant services in East coastal areas during COVID-19 pandemic with SERVQUAL-MODEL. In terms of desirable conditions of servicing of restaurants in East coastal areas that able to ensure customers on measures of preventing decease, followed by its staffs caring and provide the touchable service with their responsibility. However, to gaining restaurant trust is less reliable. On the contrary, customers who had experienced with the real conditions of those restaurants' service regard to the certification of service during on this situation together with customers' confidence and its employees' accountabilities with their compassion of servicing. Nevertheless, consumers noted that restaurant tangibility serviced is subsided. Consequently, assessing the needs of customers on restaurants in East coastal areas of Chon Buri Province, Rayong Province, Chanthaburi Province and Trat Province illustrate that the urgency of restaurants' tangibility account for prioritizing to obtain customer experiences through the guaranty of health measurement as it may be demanded to control transmission during pandemic of COVID-19.

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Traceability System for Upgrading Quality of Agricultural Products in Phra Nakhon Si Ayutthaya

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Abstract— The purposes of the research article were to develop a traceability system for agricultural products in Phra Nakhon Si Ayutthaya Province. This research methodology is a documentary and quantitative research. Researchers have reviewed various sources and found that the QR Trace on Cloud system for small and medium entrepreneurs developed by the National Bureau of Agricultural Commodity and Food Standards was suitable to be used to raise the quality of agricultural products in Phra Nakhon Si Ayutthaya Province. Therefore, researchers organized a workshop and try to evaluate the system by inviting 37 farmers with products certified or currently in the process of certification to assess the system. Most of the assessors are male, aged 36-45 years or over 56 years old, had secondary education or equivalent, and produced products in the vegetable / fruit group. The results of the system evaluation showed that, overall, the assessors were satisfied with the system properties at the highest level (\bar{X} equal to 4.57 and S : 0.431) and were satisfied with the workshop at the highest level too (\bar{X} was 4.49 and S was 0.507). Finally, there was a significant evidence that the training improved the skill ($p < 0.0001$).

Keywords— Traceability, QR Trace on Cloud, agricultural products, Phra Nakhon Si Ayutthaya

I. INTRODUCTION

Traceability system is the “the totality of data and operations that is capable of maintaining the desired information about a product and its components through all or part of its production and utilization chain.” As a product passes from one market actor to another, a traceability system collects and records data points to perform real-time and ex-post tracking of a product’s movement through the value chain from origin to final destination. Traceability systems vary widely in their scope and sophistication. They can range from individual firm-level systems capturing transactions within their own supply chain to multistakeholder platforms capable of tracking a product across the entire food system.

Traceability system is usually in web-based application and links the information between the devices via some forms of data communication. The most popular form is a QR code, which can be used by smartphones to help read and record information easily. Traceability systems can be applied in many different ways and it support the government's policy on

enhancing the competitiveness of safe agricultural products and reaching the international standard level, enhancing in end-to-end consumer perception, increasing the credibility of Thai agricultural products, and expanding the market opportunities of Thai food to the world.

Therefore, the research team will develop traceability system to raise the quality of safe agricultural products according to the policy plan to drive the economy of Thailand 4.0, which aims to implement the traceability system within the next 3 years and stimulate Thai farmers to prompt for using this system in the future.

II. RESEARCH OBJECTIVES

The purposes of the research were to develop a traceability system for agricultural products in Phra Nakhon Si Ayutthaya Province.

III. LITERATURE REVIEW

Traceability System

Traceability information for products is often required to comply with more stringent requirements from customers and regulatory agencies. Manufacturers must find innovative ways to create value, reduce risk, and ensure compliance. One innovative approach to responding to these challenges is the implementation of Tracking and Traceability Systems.

Tracking is the primary method of guaranteeing product safety. This involves a system that is designed to follow a product through all phases of the manufacturing process. This implies that each individual process step is being monitored by an automated system and each individual product or product batch is uniquely encoded so that it can be identified. Encoding and identification is traditionally done by means of barcodes and QR code but recent developments have made more sophisticated techniques like Radio Frequency Identification (RFID) more affordable.

The automated system constantly monitors all key process parameters, including machine settings and quality measurements.

A product or batch that did not complete a production step successfully will be automatically marked as defective and be refused further processing without intervention. This method allows that a single final check can be used to confirm that a product has undergone all operations successfully before it is shipped. This method prevents faults in the early stages of production remaining undiscovered until the final quality check. In modern production processes, many steps are irreversible so the only option remaining is to scrap the entirely finished, but defective product.

Traceability is defined as the ability to trace the production history of a product based on its serial number or applied batch number. Such history becomes important in the event of a customer complaint or a detected product defect after the product has left the factory. For more and more consumer products traceability is becoming compulsory.

A historical record of all data relevant to the process further allows the manufacturer to proactively design and optimize the production process involved. By analyzing data and comparing current information against previously recorded information, the performance and quality aspects of each production process can easily be benchmarked. The data is also useful for identifying bottlenecks in the process.

In a typical manufacturing plant, there are various production processes, each with its own unique characteristics and therefore different traceability objectives. The data volume will strongly depend on the number of tracked materials, lot sizes and the number of registration points. The system should

be scalable and able to capture both shop-floor data and real-time manufacturing data with minimal configuration.

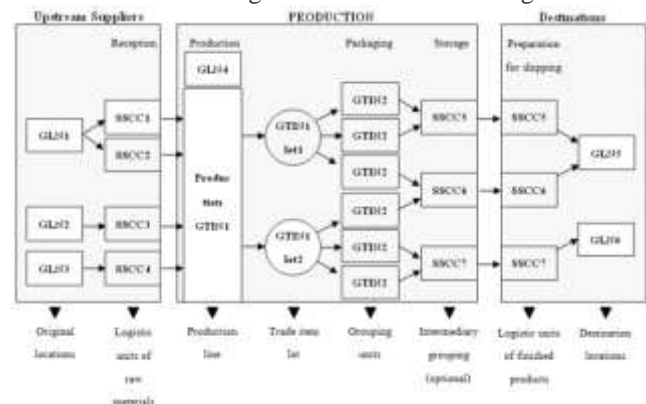


Fig.1 Information flow in Traceability system

Principles of Traceability needs the standard codes or sets of numbers used to identify the products. Information flow in Traceability system is shown in Fig.1. These codes may be

- 1) Global Location Number (GLN) that can be used by companies to identify their locations, giving them complete flexibility to identify any type or level of location required,
- 2) Global Trade Item Number (GTIN) that can be used by a company to uniquely identify all of its trade items. GS1 defines trade items as products or services that are priced, ordered or invoiced at any point in the supply chain,
- 3) Serial Shipping Container Code (SSCC) that can be used by companies to identify a logistic unit, which can be any combination of trade items packaged together for storage and/or transport purposes; for example, a case, pallet or parcel.

These codes will be used as references in the database between partners by using barcodes or QR code as an important tool for connecting. These codes are assigned by the GS1 organization and these numbers are uniquely assigned.

Benefits of implementing Traceability System

- Lower cost of distribution systems
- Reduce recall expense
- Improve production process and minimize production faults
- Incremental revenue from improved visibility of the supply chain
- Improve productivity rapidly meanwhile reduce the proportion of rejects
- Attain desire level of quality
- Reduce operating cost and improve the profitability
- Improve operations and achieve a quantifiable return on investment
- Eliminate batch process errors and reduce wastage
- Improve plant floor operation efficiency

- Reduce inventory costs through the ability to release product immediately

GS1 [1]

GS1 is a not-for-profit organization that develops and maintains global standards for business communication. The best known of these standards is the barcode, a symbol printed on products that can be scanned electronically. Over 100 million products carry GS1 barcodes and they are scanned more than six billion times every day.

GS1 has 115 local member organizations and over 2 million user companies.

GS1 standards, services and solutions are designed to improve the efficiency, safety and visibility of supply chains across physical and digital channels in a wide variety of sectors. They form a business language that identifies, captures and shares key information about products, locations, assets and more.

History of GS1 and its responsibility

In 1969, the retail industry in the US was searching for a way to speed up the check-out process in shops. The Ad Hoc Committee for a Uniform Grocery Product Identification Code was established to find a solution.

In 1973, the Universal Product Code (UPC) was selected by this group as the first single standard for unique product identification, and in 1974, the Uniform Code Council (UCC) was founded to administer the standard.

On 26 June 1974, a pack of Wrigley's chewing gum became the first ever product with a barcode to be scanned in a shop. In 1976, the original 12-digit code was expanded to 13 digits, which opened the doors for the identification system to be used outside the U.S.

In 1977, the European Article Numbering Association (EAN) was established in Brussels and with founding members from 12 countries.

In 1990, EAN and UCC signed a global cooperation agreement and expanded overall presence to 45 countries.

In 1999, EAN and UCC launched the Auto-ID Centre to develop Electronic Product Code (EPC) enabling GS1 standards to be used for RFID.

In 2004, EAN and UCC launched the Global Data Synchronization Network (GDSN), a global, internet-based initiative that enables trading partners to efficiently exchange product master data.

By 2005, the organization was present in over 90 countries which started to use the name GS1 on a worldwide basis. Whilst "GS1" is not an acronym, it refers to the organization offering one global system of standards.

Aug 2018 - GS1 Web URI Structure Standard is ratified allowing unique ID's to be added to products by storing a URI (a webpage-like address) as a QR code.

About GS1 Thailand, which is belonging to the Federation of Thai Industries, was formed in 1988 and located on 11th Floor, Creative Technology Building (UTK), Nang Linchi Road, Thung Maha Mek, Sathon, Bangkok.[2]

Serial Shipping Container Code (SSCC)[3]

The SSCC is a crucial key for traceability, since it uniquely identifies each distributed logistic unit and its content. The SSCC enables companies to track each logistic unit for efficient order and transport management. It can be encoded in a barcode, QR code or EPC/RFID tag, ensuring the logistic unit can be accurately and easily identified as it travels between trading partners, anywhere in the world.

When SSCC data is shared electronically via EDI or EPCIS, this enables companies to share information about the status of logistic units in transit, and reliably link it to related transport information such as shipment details. It enables companies to link to additional information about the logistic unit. This information can be communicated via a Despatch Advice or Advanced Shipping Notice (ASN) prior to the logistic unit's arrival. Upon receipt the SSCC will be scanned, providing the required information to speed up the receipt of goods as well as the subsequent invoicing process.

The SSCC is fully compatible with iso/ iec 15459 – part 1: unique identifiers for transport units. This is often referred to as the iso license plate and is a prerequisite for tracking and tracing logistic units in many international supply chains.

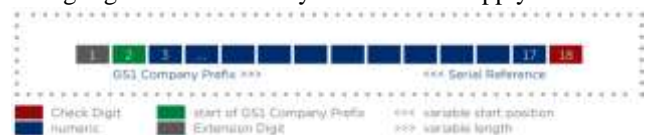


Fig.2 Structure of SSCC

QR Trace on Cloud [4]

QR Trace on Cloud is a cloud-based traceability system for small and medium-sized enterprises in agricultural product, supports up to 6 groups of agricultural products including vegetable/fruit, rice, egg, livestock, fishery, and processed products/food. The users can store the tracking and production information. This creates a linkage of traceable information throughout the supply chain, where QR Code is used as a tool that enhances efficiency in linking traceability information to consumers.



Fig.2 Application on QR Trace on Cloud

This system was developed by the National Bureau of Agricultural Commodity and Food Standards (ACFS) and has been used since 2018. The qualifications of those who use this system must be the entrepreneurs who produce quality products by having standard certification such as Organic standard (Organic), standard of Good Agricultural Practice (GAP), and have a computer or smartphone and a label printer and they can apply for usage via <https://www.acfs-qrtrace.com>

IV. RESEARCH METHODS

A. Research Design

Documentary research and quantitative research were used and research tools were questionnaires. Data were collected from literature reviews and training program. Quantitative data from 37 samples who train and test the system was analyzed by using descriptive statistics and paired sample t-test.

B. Research Process

Research process of this research has developed into 5 steps consisted of 1) to study the context of GAP supply chain in Phra Nakhon Si Ayutthaya, 2) to study the features of QR Trace on Cloud system, 3) to train the system to the farmers who are the actors in GAP supply chain, 4) the farmer use the system and evaluate it, and 5) to summarize the research. All steps were shown as follows:

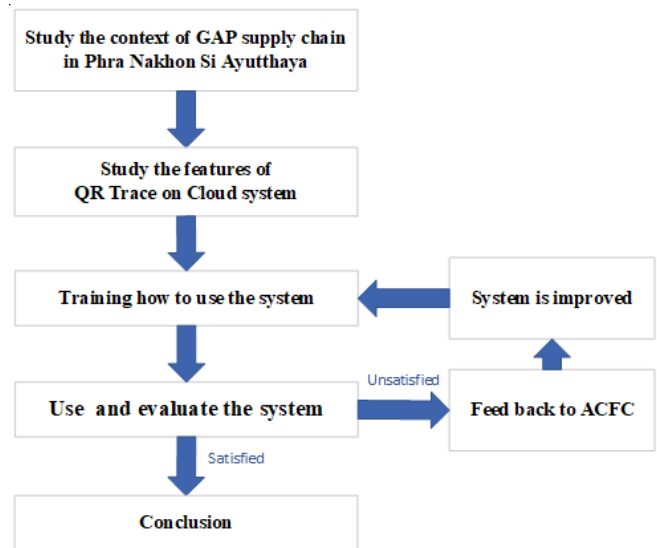


Fig.3 Research Process

V. RESEARCH RESULTS

From the documentary study, QR Trace On Cloud system is appropriate for use in the context of GAP supply chain in Phra Nakhon Si Ayutthaya.

Then the researcher make the training program on February 3-4, 2021, with a total of 37 participants in the workshop. Most of the participants were the farmers who likely lacked expertise and skills in using computers and equipment. Therefore, the researcher prepared 2 assistant trainers and a team of more than 10 students, who are instructors and students in the Department of Information Systems and Business Computing, to facilitate such assistance.





Fig.4 Example pages of QR Trace on Cloud System

After the training program, the researcher let the trainee evaluate the system and the results are shown as follows:

- Most of the samples were male, aged 36-45 years and over 56 years old, having a secondary education or equivalent. and produce products in the vegetable / fruit group
- The results of the system evaluation found that, overall, the samples were satisfied with the system properties at “very satisfied” level (mean = 4.57 and S = 0.431). The most satisfied aspect is “the system use the modern technology” (mean = equals 4.73 and S = 0.450), and followed by the aspect “The system have the benefits for their works” (mean = 4.68 and S = 0.580), and the least satisfied aspect is “the ease of use of the system” (mean = 4.35 and S = 0.676) but it is still in “very satisfied” level.
- Overall, the samples were satisfied with *the service procedure* at “very satisfied” level (mean = 4.45 and S = 0.475). The most satisfied aspect is “the systematic operation and the clear procedures” (mean = 4.59 and S = 0.498), and followed by the aspect “ease of registration” (mean = 4.51 and S = 0.559), and the least satisfied aspect is “public relations of the training program” (mean = 4.22 and S = 0.712).
- Overall, the samples were satisfied with *the trainers* at “very satisfied” level (mean = 4.67 and S = 0.407). The most satisfied aspect is “the explanation of the content is clear and hit to the point” (mean = 4.76 and S = 0.435), and followed by the aspect “the knowledge transfer of speakers and the speaker's answer” (mean = 4.73 and S = 0.450), and the least satisfied aspect is “suitability of the lecture notes” (mean = 4.54 and S = 0.558).
- Overall, the samples were satisfied with *the facilities* at “very satisfied” level (mean = 4.46 and S = 0.488). The most satisfied aspect is “the suitability of the media and equipment” and “the clarity of the training materials” (mean = 4.57 and S = 0.502 and 0.555 respectively), and followed by the aspect “the suitability of the venue” (mean = 4.46 and S = 0.605), and the least satisfied aspect is “the suitability of lunch and snacks” (mean = 4.30 and S = 0.618).

- Overall, the samples were satisfied with *the staff service* at “very satisfied” level (mean = 4.61 and S = 0.427). The most satisfied aspect is “the facilitation from staff” (mean = 4.65 and S = 0.484), and followed by the aspect “the staff provide the advice or answer inquiries promptly” (mean = 4.62 and S = 0.492), and the least satisfied aspect is “the staffs’ service and coordination” (mean = 4.59 and S = 0.498).

- *In the overview of the training*, the samples were satisfied at “very satisfied” level (mean = 4.55 and S = 0.385). The most satisfied aspect is “the trainers” (mean = 4.67 and S = 0.407), and followed by the aspect “the staff service” (mean = 4.61 and S = 0.427), and the least satisfied aspect is “the service procedure” (mean = 4.45 and S = 0.475).

- Overall, the samples had the opinion with *the cognitive opinion* at “highest” level (mean = 4.31 and S = 0.537). The aspect that gets the highest level of the opinion is “understanding this system after the training” (mean = 4.41 and S = 0.599), and followed by the aspect “getting the benefit of the training” (mean = 4.38 and S = 0.545), and the aspect that gets the lowest level of the opinion is “describing the details from the training” (mean = 4.19 and S = 0.739).

- The samples had compared the knowledge before and after the training, almost all evaluated that their cognition was increased. The score increased to 2.135 points on average and the standard deviation equals to 1.032 and it showed that the cognition of the samples increased significantly at 0.05 level. See Table 1.

Table 1 Score difference after the training compared to before the training and result of paired sample t-test

Score difference after the training compared to before the training	N	%
0 point	1	2.70
1 point	1	27.0
	0	3
2 point	1	35.1
	3	4
3 point	9	24.3
	2	
4 point	4	10.8
	1	

Paired sample t-test	Mean	S	t	df	P-Value
After – Before the training	2.135	1.032	12.588	36	.000

- Overall, the samples had the opinion with *the knowledge implementation* at “highest” level (mean = 4.22 and S = 0.566). The aspect that gets the highest level of the opinion is “can apply the gained knowledge in practice”, “can give the counselling to the colleagues”, and “can apply the gained

knowledge confidently.” (mean = 4.24 and S = 0.641, 0.597 and 0.597, respectively) and the aspect that gets the lowest level of the opinion is “can transfer the knowledge to the community” (mean = 4.14 and S = 0.673).

VI. DISCUSSIONS

From the evaluation of training and system usage, it was found that the farmers who used the system were satisfied with the features of the QR Trace on Cloud system at the highest level. Even most of all are not familiar with this technology but they can actually use the system. This system is therefore suitable for use among farmers of Phra Nakhon Si Ayutthaya Province. With the workshop process, the satisfaction level was highest because there are assistant trainers and students that help trainees to use the computers and smartphone and this cause the rapid learning during training.

VII. RECOMMENDATIONS

1. GAP certification process should be improved to be more expedient because many farmers have been waiting for a long time to inspect their farms but are not yet certified. This makes the farmers are unable to use the actual system.
2. The system should provide alternatives for the farmers who are ready to use the QR Trace on Cloud system but are facing the problem of not certifying the standard that requires for using this system. Alternative identity verification should be used for this.

VIII. CONCLUSION

QR Trace on Cloud system is appropriate for using as a traceability system because it is free, easy to use and government support. GAP farmers can use this system because the traceability system is one of the requirements for GAP.

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Finally, the research team would like to thank all the farmers who evaluate the system and the experts who gave useful

suggestions for this research until this research has been successfully completed.

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Service marketing strategies and entrepreneurial leadership affecting the success of hotel business during the crisis in Phra Nakhon Si Ayutthaya, Nonthaburi, Pathum Thani

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Abstract— *The objectives of this research were: 1. To study service marketing strategies and entrepreneurial leadership affecting the success of hotel business during the crisis in Phra Nakhon Si Ayutthaya, Nonthaburi, Pathum Thani. 2. To confirm service marketing strategies and entrepreneurial leadership model affecting the success of hotel business during the crisis in Phra Nakhon Si Ayutthaya, Nonthaburi, Pathum Thani. This research was mixed-method research, both quantitative and qualitative. The quantitative research comprised 15 observed variables by collecting data from 300 hotel entrepreneurs in Phra Nakhon Si Ayutthaya, Nonthaburi, and Pathum Thani. The qualitative research collected data from a group of nine hotel-related experts using purposive sampling. The tools used were a semi-structured questionnaire and interview, data analysis using LISREL, and a Structural Equation Model (SEM). Research results showed that: 1. Service marketing strategies and entrepreneurial leadership affecting the success of hotel business during the crisis in Phra Nakhon Si Ayutthaya, Nonthaburi, Pathum Thani applied to empirical information. The Index of Consistency was: $\chi^2 = 114.19$, $df = 86$, $\chi^2 / df = 1.33$, $CFI = 0.962$, $GFI = 0.951$, $SRMR = 0.0443$, $RMSEA = 0.033$. 2. Factors affecting the success of hotel business during the crisis in Phra Nakhon Si Ayutthaya, Nonthaburi, Pathum Thani were service marketing strategies and entrepreneurial leadership, respectively.*

Keywords— *service marketing strategy, entrepreneurial leadership, hotel business success*

I. INTRODUCTION

Today's world has entered the era of globalization, which is a society of borderless communication, so communication between each other, regardless of country and region, can be done in a matter of seconds. Such borderless communication also includes the learning and perception of the language, culture, and scenery of other countries embedded in tourism. Therefore, the tourism industry has been expanding rapidly to become a large industry that generates income for many countries and strengthens the world's economy as much as possible [1]. This is because the tourism industry comprises many types of affiliated businesses. One of the major businesses is the accommodation business, which includes hotels, homestays, and resorts [1]. The hotel business is considered a business that plays an important role in the locality as an important element in tourism facilitation and as a center for social gatherings that benefit the economy and national development [2]. At

present, crisis management in the hotel business is very important to the current hotel business as various crises have continuously affected the hotel business, including risks that may inevitably have a significant impact. It could be seen that the average occupancy rate in January-September 2019 was 71.1 percent, which was higher than in 2017 and 2018 (only 68.5 percent and 71.0 percent), making in 2019 the total revenue of 3.1 trillion baht [3]. The COVID-19 epidemic crisis is expected to reduce the number of foreign tourists visiting Thailand during January-March 2020 by over 20% and will continue to decline [4]. Especially in the second quarter, there was an outbreak of the COVID-19 virus that spread to more countries. Because of the increased level of prevention measures for each country, it is expected that the number of foreign tourists traveling to Thailand will drop by 30 percent, or about 6.3 million, and is likely to continue to decline [4]. The situation directly affects business operations in the tourism and hospitality industry such as the cancellation of domestic and international flights of business aviation, cancellation of hotel reservations in the hotel business, the

slowdown in global industrial production under the global value chain system. These have an inevitable impact on domestic and international trade and investment [4]. To reduce the risk and prevent the spread of the COVID-19 virus and to raise the standards of Thai tourism products and services, it has severely affected 32,564 hotels (only businesses that are legally registered) or over 1.63 million rooms across the country in all 4 regions [5]. The southern region has the largest number of rooms, which is approximately 145,728 rooms, or 31.8%, followed by the central region with approximately 120,414 rooms (percent 26.3), Bangkok of 80,077 rooms (17.5 percent), the northern region of 72,186 rooms (15.8 percent), and the northeastern region has the least number of rooms, about 39,571 rooms (8.6 percent).

According to the room information for all 4 regions, it can be found that the central region has the most rooms, especially in the upper central region, which comprises 3 provinces, comprising Phra Nakhon Si Ayutthaya, Nonthaburi, and Pathum Thani. These provinces are the major tourist cities, especially Phra Nakhon Si Ayutthaya, which is the main city in attracting tourists because it is an old city with long historical significance and distinctive identity, especially historical sites that have been registered as World Heritage Sites by UNESCO. As a result, both Thai and foreign tourists come to visit these areas throughout the year with hotel accommodation arrangements. There are 182 hotels in Phra Nakhon Si Ayutthaya, 243 in Nonthaburi, and 117 in Pathum Thani. Therefore, hotels have to adjust their management strategies under the COVID-19 crisis to reduce the potential damage to the organization in terms of reputation, credibility, value creation process, competitive position, source of income, and business continuity [6]. As mentioned above, the researcher studied service marketing strategies and entrepreneurial leadership affecting the success of hotel business during the crisis in Phra Nakhon Si Ayutthaya, Nonthaburi, Pathum Thani. The research focuses on service marketing strategies and entrepreneurial leadership, and hotel business success. The results will plan hotel management to plan strategies that are suitable for hotel business management in Phra Nakhon Si Ayutthaya, Nonthaburi, Pathum Thani. The research can be used as a guideline for relevant agencies to use in the hotel business in crisis to be more effective in the future.

II. RESEARCH OBJECTIVES

1. To study service marketing strategies and entrepreneurial leadership affecting the success of hotel business during the crisis in Phra Nakhon Si Ayutthaya, Nonthaburi, Pathum Thani.
2. To confirm service marketing strategies and entrepreneurial

leadership model affecting the success of hotel business during the crisis in Phra Nakhon Si Ayutthaya, Nonthaburi, Pathum Thani.

III. LITERATURE REVIEW

The hotel business is directly linked to the tourism and hospitality industry and is one service sector that plays a key role in the country's economic growth. At present, the number of foreign tourists, especially China, (BRIC), Russia, India, and Brazil, has grown in line with the economic expansion, causing the tourism business of all regions around the world. The United Nations World Tourism Organization (UNWTO) forecasts that the number of global tourist arrivals by 2030 will increase to 1.8 billion, the Asia and Pacific region is the region with the highest growth rates. However, the current tourism situation is still uncertain from natural disasters, epidemics, terrorism, economic and political instability in many countries around the world. As a result, it has a severe impact on the tourism and hotel business such as natural disasters from the tsunami in Southeast Asia countries (2004), the Asian economic crisis (1997), and the outbreak of the epidemic, SARS, and avian influenza (2003–2004). In the past, although the hotel business continued to suffer from labor shortages because of the crisis, most hotels often solved the problem by reducing labor or personnel costs. However, with each crisis, there will be both success and failure [6]. If the hotel business has plans and strategies that can deal with and deal with crises well, they will survive the crisis and recover faster. As mentioned above, the researcher was interested in studying service marketing strategies and entrepreneurial leadership affecting the success of hotel business during the crisis in Phra Nakhon Si Ayutthaya, Nonthaburi, Pathum Thani. The research focuses on service marketing strategies and entrepreneurial leadership affecting the success of hotel business during the crisis in Phra Nakhon Si Ayutthaya, Nonthaburi, Pathum Thani. For a hotel business to succeed during a crisis, many factors affect the success of the hotel business during the crisis in Phra Nakhon Si Ayutthaya, Nonthaburi, Pathum Thani [6]. Service Marketing Mix is a marketing tool or variable that can meet the satisfaction of target customers. The marketing mix (or 7 P's) is one of the most important concepts for modern marketing entrepreneurs. The concept of this marketing mix plays an important role for entrepreneurs or stakeholders because it combines various techniques to be used in operations so that businesses can adapt and change to meet the needs of customers and target markets or encourage target customers to demand their products and services. [7] In the consumer context, marketers have a goal of action to achieve hotel business success during the crisis in Phra Nakhon Si Ayutthaya, Nonthaburi, Pathum Thani. These

provinces are the major tourist cities, especially Phra Nakhon Si Ayutthaya, which is the major city in attracting tourists because it is an old city with long historical significance and distinctive identity, especially historical sites that have been registered as World Heritage Sites by UNESCO. As a result, both Thai and foreign tourists come to visit these areas throughout the year with hotel accommodation arrangements and can explain the factors as follows.

1. Service marketing is a marketing or economic activity whereby one party, called the entrepreneurs, offers goods and services to another, called the customer. It mainly involves delivering the products according to the customer's needs for things such as the money, time, and effort that the customer expects to receive, whether it be goods, labor, skills, and facilities. We call this the "service marketing mix," or it may refer to the tools or marketing factors that a business needs, such as a manufacturing or service business. It is a response to the needs and satisfaction of the target customer group or to stimulate the target customer's demand for their products and services, which is a factor in the marketing planning of the product or service. If it is a product, there will be only 4 factors in the marketing mix: product/service, price, place/distribution channel, and promotion. However, the service marketing mix is unique from the general product marketing mix because it focuses on the staff, the service, and the physical environment. These three factors comprise people, process, and physical evidence. When these three factors are integrated, it is the principle of complete service delivery. Therefore, the marketing mix in the service market is an activity that meets customers' needs to create maximum customer satisfaction. It can be seen that before purchasing a service, the buyer often sets rules for the quality and benefits of the service. Sellers or entrepreneurs need to build trust in buyers by using strategies or collateral so they can make faster decisions, that is 7P's marketing mix. To produce a product, a 4P's marketing mix is required, but as a service, whether it is a hospitality or tourism business, it is necessary to add 3 more marketing mixes (people, process, and physical evidence) to form a 7P's strategy. This is to ensure that customers or service recipients are satisfied as well as being prepared to operate effectively and efficiently and meet the needs of consumers, customers, and tourists. In particular, service providers must align their marketing process goals with STP (segmentation, targeting, and positioning) for market share analysis, which summarizes the market in terms of sales volume. After that, it can formulate the next marketing strategy. According to the concept of modern marketing, marketers must choose a marketing strategy that meets the target customers correctly and creatively. The right marketing mix ensures maximum customer satisfaction. Using the

marketing mix in the service sector is to provide customer satisfaction and stable business operations. The marketing experience that should be adapted to the service is 7P's marketing mix, which includes: 1. Product is delivered according to customer's needs such as appearance, service, and quality. 2. Price is to set a reasonable price for that product and service. 3. Place is to create convenience so that customers can easily access it, such as selling through online marketing channels. 4. Promotion is the use of marketing strategies to increase awareness of customers so that they can make faster decisions. 5. People is the preparation of personnel to provide services that impress customers, consumers or tourists. 6. Process is an organization management method that must maintain quality, speed, timeliness, and meet customer needs. 7. Physical evidence is to maintain cleanliness of the landscape and surroundings [11] [12][13][14] [15].

2. Entrepreneurial leadership

Entrepreneurial leadership is a key factor influencing the success of a hotel business. They are the ones who develop strategies with a goal in mind and a broad vision of organizational resource management that leads to the improvement of the organization and its members and the growth of the business. Entrepreneurship leaders need to accept the opinions of the organization's contributors to reassure members of the organization that they can lead the organization to achieve its goals and cope with environmental change. The four key attributes of entrepreneurial leaders include 1. creativity 2. risk management 3. communication 4. decision-making [16],[17],[18]

3. Success of hotel

Balanced scorecards result from strategic planning and identifying their importance and connections. The outcome of success often depends on financial performance. It may depend on the entrepreneur's ability to raise capital or operate in a surplus. A balanced scorecard not only encourages key measurements but also drives them further. The criteria for delivery and success should have the following key characteristics: providing a conceptual framework not only improves strategic efficiency but also helps to understand what should be done and measure all performance levels. The results must be at a level "balanced" to achieve the most effective strategic outcomes. The balanced scorecard should fit your organization's objectives and encourage cross-organization. The balanced scorecard theory is an organizational implementation using the balanced scorecard or BSC model. [18] states that the balanced scorecard is a concept derived from Professor Robert Kaplan's conception of the balanced scorecard, or BSC model, as a management tool that allows organizations to manage strategy through

performance measurement. The idea of a balanced scorecard first emerged when Robert S Kaplan and David P. Norton published an article in the Harvard Business Review in 1992, the balanced scorecard, or BSC model, is a multi-dimensional measure of success assessed by a comprehensive assessment of success rather than focusing on just one dimension of business capability. The BSC model can also link individual metrics to organizational metrics because the balanced scorecard or BSC model helps to balance organizations in three aspects:

1. There is a balance between operations in all aspects of the organization, such as finance, customers, internal management processes, and organizational learning and growth.
2. The balance between short-term goals is controlled because the BSC model can convey its vision into action, which makes the relationship between goals in each phase visible.
3. The balance between goals and actual performance BSC model was used to control, monitor performance, and compare with goals to determine whether performance overtime was in line with goals. If the performance doesn't meet the goals, they can analyze it to determine the cause and corrected it on time. The balanced scorecard view is divided into 4 sides. According to research related to factors affecting hotel business success, there are variables related to factors:
 1. Learning and growing
 2. Internal process
 3. Customer's point of view
 4. Financial perspective [17],[18],[19]

4. Entrepreneurial leadership vs. marketing Service strategy

It was found that there was a powerful influence between entrepreneurial leadership and service marketing strategies. Based on research by [21] Marketing to target both Thai and foreign customers can be carried out through the planning of marketing strategies that focus on price and human resource development planning under the characteristics of excellent service providers. Entrepreneurs must accept changes in order to lead to the development of hotel business in response to the needs of users, creating acceptance and satisfaction beyond the expectations of service users. This helps the business to continue for long and sustainable life. An organization's survival strategy should comprise agility, flexibility, creativity, and innovation by aligning the goals of the organization. [21] focuses on building service excellence for customers to the profitability of the organization. An organization's competitive advantage strategy is to enable the organization to differentiate its services and operations at a lower cost than its competitors. Innovation is used as a measure of an organization's competitiveness strategy. They explain that innovation is the key to creating a competitive advantage and enabling organizations to survive and

ultimately lead them to sustainability. Leadership is a key factor influencing the success or failure of an organization's survival and growth [2] study of hotel business leadership and success, entrepreneurial leadership can have a strong direct influence on hospitality marketing. Good management and executives with entrepreneurial leadership, such as creativity, risk management, communication, and decision-making, will significantly affect service marketing. We should attractive products and services and differentiating products and services and the management of investment courage, coordinating with personnel, coordinating with partners including site selection and work processes. This will lead the hotel business to the success of sustainable efficiency and effectiveness It can be summarized as hypothesis 1

H1: Entrepreneurial leadership influences service marketing strategy

5. Entrepreneurial leadership vs. success of hotel

Entrepreneurial leadership has a powerful influence on the success of the hotel business during the crisis in Phra Nakhon Si Ayutthaya, Nonthaburi, and Pathum Thani. According to the research by [22], they found that leaders with managerial skills and entrepreneurial leadership can create both value creation and business efficiency found that good leadership and competence included self-confidence, communication ability, self-care, adaptability, risk tolerance, continuous learning, and decisiveness. As mentioned above, it affects the quality of excellent service and differentiates the business, making it the most successful.[23]found that enterprise leadership increases enthusiasm and willingness to work. Besides leading to better service quality, it also increases the efficiency of the organization or results in managing the hotel business in crisis. It can be summarized as hypothesis 2:

H2 : Entrepreneurial leadership influences the success of the hotel

6. Services marketing strategy vs. success of hotel

Service marketing strategy has a powerful influence on the success of the hotel business during the crisis in Phra Nakhon Si Ayutthaya, Nonthaburi, and Pathum Thani. According to research by [24] the mixed strategy has a significant positive effect on service loyalty, meaning that the more correct or better a mixed strategy is applied to a four-star hotel, the greater the chances of building loyalty to the service. The service marketing mix strategy influences service success, and hotel service loyalty can promote service success. This means that the more loyalty a hotel guest has given to the hotel, the more successful the hotel will be. There is a positive correlation between service marketing mix strategy and service success when service loyalty is involved. found that marketing mix variables such as product, price, place,

promotion, people, process, and physical evidence have a positive impact on the marketing effect of hotels in eastern provinces. While the price offer is the most important element of the marketing mix that influences the market, the second most important is the hotel's excellent performance and physical evidence and can be summarized as hypothesis 3: H3: Market Service strategy influences the success of the hotel

The three assumptions can be summarized as a concept model, as shown in Figure 1.

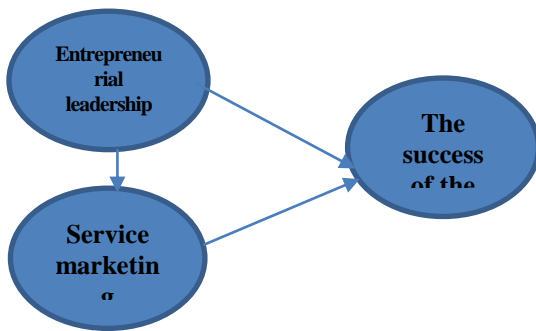


Figure 1 Concept Model

IV. RESEARCH METHODS

This research was mixed. Quantitative research was used to collect data for 300 people using convenience sampling. The instrument used was a closed-ended questionnaire with a 5-point Likert scale in which IOC was 0.8-1.00 and Cronbach's alpha was 0.83. Questionnaires were distributed in person and electronically. Qualitative research was a focus group of nine entrepreneurs and professionals working in the hotel business or researching until the data was saturated using judgment sampling. The participant criteria were a supervisor with experience in hospitality management during the crisis in Phra Nakhon Si Ayutthaya, Nonthaburi and Pathum Thani to confirm the quantitative research model.

Population and sample

1. Research population the population used in this research was hotel entrepreneurs in Phra Nakhon Si Ayutthaya, Nonthaburi, and Pathum Thani.
2. Sample the population sample used in this study was hotel entrepreneurs in Phra Nakhon Si Ayutthaya, Nonthaburi, and Pathum Thani. A sample group (Hair, Black, Babin, and Anderson, 2010) was used which stated that the criteria used to determine the sample size should be 20 times larger than the observed variable. This research had 15 observational variables and therefore had to have a sample size of 300 people. The researcher set the sample size at 20 times, so the total sample number was 300 people.

3. Data Collection Tools the tools used for data collection could be classified as follows. 1) Quantitative research was conducted using a comprehensive questionnaire on the definitions of all studied variables. 2) The qualitative method was conducted using a semi-structured interview form as detailed below. 1) Research tools for quantitative research - the researcher used a questionnaire to collect opinions of hotel entrepreneurs in Phra Nakhon Si Ayutthaya, Nonthaburi, and Pathum Thani provinces. The researcher used a 5-point Likert scale. 2) Research tools for qualitative research - Qualitative research was used to confirm service marketing strategies on entrepreneurial leadership that affect hotel business success during the crisis in Phra Nakhon Si Ayutthaya, Nonthaburi, and Pathum Thani provinces. The researcher used quasi-structured and focus group interviews with hotel entrepreneurs in Phra Nakhon Si Ayutthaya, Nonthaburi, and Pathum Thani.

4. Research tools in qualitative research the content validity test was conducted by five experts to examine the consistency, objectives, and research conceptual framework of the questionnaire. The results of the questionnaire quality examination by five experts in content validity, questionnaire coverage, suitability, and clarity of language use found that consistency values ranged from 0.8-1.00, which satisfied the reliability check criteria using the alpha coefficient. The results of reliability testing using tryouts on 30 non-research subjects showed the questionnaire had a Cronbach's alpha value of 0.83. The questionnaire can be used in the study and meet the specified criteria.

V. RESEARCH RESULTS

Data collection of 300 service users or tourists and analysis of structural equations (SEM) revealed that there were 3 latent variables and 15 observational variables: 1. Marketing strategy service could be divided into 7 areas: 1.1 Products (PRS) 1.2 Price (PRI) 1.3 Place (PLA) 1.4 Promotion (PRT) 1.5 People (PEO) 1.6 Physical evidence (PHE) 1.7 Process (PRO) 2. Entrepreneurial Leadership could be divided into four areas: 2.1 Creativity (CRE) 2.2 Risk Management (RIM) 2.3 Communication (CUM) 2.4 Decision Making (DEM) 3. Success of hotel could be divided: 3.1 Finance 3.2 Customers 3.3 Internal processes 3.4 Learning and growing. The results were interpreted using the Lisrel program to confirm the congruence of the empirical data obtained from the questionnaire and to determine whether the model had congruence. The results showed that the values $\chi^2 = 114.19$, $df = 86$, $\chi^2/df = 1.33$, CFI = 0.962, GFI = 0.94, SRMR = 0.0443, RMSEA = 0.033. This value was assumed to pass the criteria of [30] and had a predictive coefficient R² of 55%, as shown in Figure 2.

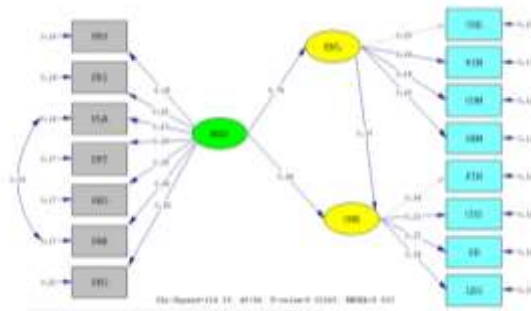


Figure 2 Service marketing strategies and entrepreneurial leadership model affecting hotel business success during the crisis in Phra Nakhon Si Ayutthaya, Nonthaburi, and Pathum Thani

Figure 2 shows that service marketing strategies and entrepreneurial leadership model affecting hotel business success during the crisis in Phra Nakhon Si Ayutthaya, Nonthaburi, and Pathum Thani had congruence with empirical data according to the criteria of [30] as in Table 1

Table 1 congruence index with empirical data

Assessment Criteria 12<Observed variable s<30	Results of model analysis	Conclusion
p-values ≤ 0.05	0.022	pass
CFI > 0.92	0.962	pass
SRMR < 0.08	0.044	pass
RMSEA < 0.07	0.033	pass
$\chi^2 / df \leq 3$	1.33	pass

Figure 2 shows that service marketing strategies and entrepreneurial leadership that affect hotel business success during the crisis in Phra Nakhon Si Ayutthaya, Nonthaburi, and Pathum Thani have congruence with empirical data according to the criteria of [30] and total effect as in Table 2.

Table 2 Table shows the total effect of the hypothesis

Hypothesis	Direct Effect	Indirect Effect	Total Effect	Decision
H ₁ Marketing Strategy Service influences the decision making	0.76	-	0.76	Accepted
H ₂ Marketing Strategy Service influences the success of the hotel	0.64	0.2812	0.9212	Accepted
H ₃ Entrepreneurial leadership influences the success of the hotel	0.37	-	0.37	Accepted

Table 2 showed that there were 3 hypotheses, and all criteria were considered, in descending order of influences: 1. H₂: Tourism behavior influences market service. The value of influence was 0.8200, divided into direct influence was 0.82 but no indirect influence. 2. H₁: Tourism behavior influences decision-making. The value of influence was 0.6268, divided into the direct influence was 0.43 and the indirect value was 0.1968. 3. H₃ Market service influences decision-making. The value of influence was 0.2400, divided into the direct influence was 0.24 but no indirect influence.

VI. DISCUSSIONS

Qualitative research was a focus group of nine entrepreneurs and professionals working in the hotel business or researching until the data was saturated using judgment sampling. The participant criteria were a supervisor with experience in hospitality management during the crisis in Phra Nakhon Si Ayutthaya, Nonthaburi, and Pathum Thani to confirm the quantitative research model. Empirical data-driven entrepreneurial leadership during the crisis found that the outcomes of focus group interviews were consistent, ie they agreed with the model. Most focus group interview results focused on marketing strategies, particularly pricing and entrepreneurial leadership. Focus group interviews also highlighted how service marketing factors influence service decision-making and these results mainly focus on the promotion, i.e. reduction, redemption, giveaway, and give an extra amount, followed by service process. Therefore, it could be seen that behaviors and factors affecting the decision to use the service in the floating market tourism business, an important factor of entrepreneurship was self-confidence, communication skills, self-care, adaptability, taking risks. Therefore, entrepreneurs should focus on providing services (before sales, during sales, and after-sales), which would cause customers to be impressed and will affect the return of service.

VII. CONCLUSION

This research was to identify service marketing strategies and entrepreneurial leadership affecting the success of hotel business during the crisis in Phra Nakhon Si Ayutthaya, Nonthaburi, Pathum Thani. This was mixed research using service marketing strategies and entrepreneurial leadership affecting the success of hotel business during the crisis in Phra Nakhon Si Ayutthaya, Nonthaburi, Pathum Thani. The hypothesis relationship c be summarized as follows.

Entrepreneurial leadership influences the success of the hotel marketing service, consistent with [20] marketing to target both Thai and foreign customers can be carried out through the planning of marketing strategies that focus on price and

human resource development planning under the characteristics of excellent service providers. Entrepreneurs must accept changes to lead to the development of hotel business in response to the needs of users, creating acceptance and satisfaction beyond the expectations of service users. This helps the business to continue for long and sustainable life. An organization's survival strategy should comprise agility, flexibility, creativity, and innovation by aligning the goals of the organization.

Entrepreneurial leadership and the success of the hotel were consistent with [7,21] because [23] found that enterprise leadership increases enthusiasm and willingness to work. Besides leading to better service quality, it also increases the efficiency of the organization or results in managing the hotel business in crisis.

Market Service strategy and success of hotel were consistent with, marketing mix variables such as product, price, place, promotion, people, process, and physical evidence have a positive impact on the marketing effect of hotels in eastern provinces. While the price offer is the most important element of the marketing mix that influences the market, the second most important is the hotel's excellent performance and physical evidence.

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Global Dimming Situation in the Central Region of Thailand

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Abstract— A declined trend of surface solar radiation (SSR), the so call Global Warming, has as wide impact to human as global warming. However, there are lacked of empirical evidences about global dimming in the region of Southeast Asia. This study aims to establish knowledge and to understand patterns of global dimming in the central region of Thailand. The method of research began with data collection, which is composed of statistic data acquired from climatological measured stations. The trend of yearly average surface solar radiation was monitored in two periods; before and after 1990 periods. The results showed that the average annual solar radiation intensity trend in Central of Thailand, during the year before 1990 from the average daily radiation estimation model have not change significantly, except rainy season. However, the annual average solar radiation intensity during the later year 1990 showed a significant decrease in the level of 0.05. The tendency of solar radiation intensity has highly changed in the winter. This result was indicated that the central region of Thailand has been entering into the period of global dimming. In order to cope with this situation, it needs policy recommendation in terms of land use control, green area increasing, and transportation management.

Keywords— Global Dimming, Surface Solar Radiation, Central of Thailand

I. INTRODUCTION

Global dimming is a phenomenon in which the intensity of the solar radiation is reduced to the surface of the earth. The effect of global dimming is estimated to be comparable to the effect of squared global warming [1]. Global dimming causes the Asian monsoon, which is the source of rainfall, to reduce as much as 50 percent of the world's rainfall, thereby causing drought conditions in some areas and ultimately leading to global food shortages. The main cause of global dimming is the change in aerosol. The property of the aerosol is that the nuclei cause the condensation of water vapor in the air to form a cloud that is visible to the eye and then change the state and time of the cloud's appearance in the atmosphere. Aerosols can also absorb heat pollution and remain relatively stable in the air, thereby inhibiting cloud formation, known as the Semi-direct Effect. This result in a reduction in solar radiation due to an increase in aerosol levels in the atmosphere. Natural effects on the thickness of the visible aerosol layers have been found to be negligible except in the case of large volcanic eruptions such as the 1982 El Chichon eruption and the 1991 Pinatubo. Another problem is caused by human activities: 1) the increase in industry and aerosols as a result of urban production. 2) The change in intensity of solar radiation that hits the Earth's surface varies with the latitude relative to the pollution source. The intensity of solar radiation that hit the

Earth's surface was proven and compared with estimates of fossil fuel emissions) in the 1960s and 1990s. Latitude represents a decrease in the intensity of solar radiation that hit the Earth's surface and an increase in fuel emissions is estimated at 35 degrees north latitude. This corresponds to a region with high industrial activity and a very dense population^[2] In addition, several studies have shown the effects of aerosols caused by human activities to cause a decrease in the intensity of the solar radiation that hit the Earth's surface at 58W/m². The dataset was used in 1958-1985 and was highly correlated with the increase in the number of vehicles on the highway [3]. Moreover, further studies have found apparent global dimming in densely populated urban areas. Therefore, it can be concluded that in general, aerosols produced by human activities play a significant role in the change in the thickness of the visible aerosol layer and in relation to the change in the intensity of solar radiation hitting the Earth's surface [4] [5]. Scientists became interested in global dimming from 1950-1980. They found that in Europe and the Americas, the intensity of solar radiation hitting the Earth's surface tends to decrease steadily [6]. Since this was the time when the industrialization of the continent took place, a large amount of aerosols was produced in the atmosphere. However, after 1990, the situation turned out to be the opposite, known as the "Brightening Period". This was due to the movement of industrial production bases to Asia [7]. The global dimming

events in Asia had been reported before the 1960s and that large-scale countries such as Russia, China and India had been discovered. Since these countries were the world's most populous countries and were manufacturing bases in various industrial sectors, global dimming was high. In addition, space-limited countries such as Japan and the Hong Kong Special Administrative Region, which had the highest population density rates in the world, had resulted in higher rates of global dimming during this period. Quantitative results for the phenomenon of individual Asian countries [8] showed that during 1958–1992 Russia had a global dimming rate of -1 W/m^2 to -8 W/m^2 , and the occurrence of a relative trend for the period decreased by -1% to -7% . [9] was found that during 1961–1989 China had a global dimming rate of -7 W/m^2 , and the occurrence of a relative trend for the period decreased by -4.6% . [10] was found that during 1971 – 1989 Japan had a global dimming rate of -1.3 W/m^2 , and the occurrence of a relative trend for the period decreased by -0.8% . As indicated on the map, Japan's global dimming rate was the lowest of Asia. [11] was found that during 1958–1992 the Hong Kong Special Administrative Region had a global dimming rate of -18 W/m^2 , and the occurrence of a relative trend for the period decreased by -10.6% . As indicated in the map, the global dimming rate in the Hong Kong SAR has the highest rate in Asia, and [12] during 1966–1990 India found a global dimming rate of -2.9 W/m^2 , and the occurrence of a relative trend for the period decreased by -1.4% . According to various reports, in Southeast Asia, including Thailand, no data on global dimming had been reported.

II. RESEARCH OBJECTIVES

This study aimed to build a body of knowledge and understanding of global dimming patterns occurring in Thailand. A study was conducted by considering changes in the intensity of solar radiation that hit the Earth's surface in the central region of the country, leading to a solution to mitigate and prevent the effects of global dimming.

III. RESEARCH METHODS

The widespread interest and study of global dimming began in 1950. It was found that in 1950-1980 the intensity of solar radiation that hit the Earth's surface tended to decrease and the situation had the opposite effect after 1990. We therefore used time points since 1990 to study changes in solar radiation intensity. The information necessary to study the intensity of solar radiation that hits the Earth's surface was the intensity of the solar radiation that hit the Earth's surface. Data could be collected from air quality monitoring stations. However, from the collection of such data, it was found that Thailand was still very limited because no data was collected directly to study

the phenomenon before 1990. Therefore, this research applied other side-by-side data to analyze trends in the intensity of solar radiation hitting the Earth's surface. A model was used to estimate the total daily radiation from the difference between the daily maximum and minimum climate temperatures as in equations 1 and 2[13]. The model was developed to fit the Thai case for estimating total daily radiation doses at average monthly rates. It could be measured from the difference between the average daily maximum and minimum ambient air temperature per month [14]. An examination of trends of changes in the intensity of solar radiation that hit the earth's surface during the period after 1990 (1999-2017), data on the intensity of solar radiation that hit the earth's surface could be used from air quality monitoring stations recorded by air quality monitoring stations of relevant agencies, recorded on an hourly and monthly basis (AERONET, NASA, Meteorological Department, Pollution Control Department, Department of Alternative Energy Development and Efficiency).

$$H = a_4 H_0 [1 - \exp(-b_4 (\Delta T)^{c_4})] \quad (\text{Equation 1})$$

$$\text{where } \Delta T = T_{\max} - T_{\min} \quad (\text{Equation 2})$$

H is the total daily radiation. (Joules per square meter per day)
 H_0 is the daily solar radiation outside the Earth's atmosphere. (joules per square meter per day)
 T_{\max} is the maximum daily ambient air temperature. (Degrees Celsius)
 T_{\min} is the minimum daily ambient air temperature. (Degrees Celsius)
 a_4 , b_4 and c_4 are empirical coefficients

IV. RESEARCH RESULTS

The monthly average of the measurement stations using a statistical program to determine the trend of changes in solar radiation intensity over the 40-year period from 1951-2017, the consideration could be divided into two periods, the period before 1990 (1951-1990) and the period after 1990 (1990-2017). This was because the period in 1990 was when Thailand began to develop industrialization, thus affecting the increasing amount of aerosols in the atmosphere.

A. Changes in solar radiation intensity before 1990 (1951-1990)

The trend of change in solar radiation intensity of the central region during the period 1951-1990 showed no significant increase in mean annual solar radiation intensity. The trend slope estimate was 0.09142 and the mean was 221.14 W/m^2 . For each season, there was no significant increase in the mean solar radiation intensity, except for the rainy season where there was a significant increase. The trend slope estimation

lines were 0.08032, 0.30782, and 0.13016 at mean values of 247.05, 209.64, 206.51 W/m² in summer, rainy and winter respectively as shown in Table 1 and Fig. 1. If considering the average monthly solar radiation intensity, it was found that the highest solar intensity value of 260.98 watts per square meter is in April and the month with the lowest average solar radiation intensity of 194.97 W/m² was November as shown in Table 1 and Fig. 2.

Table 1 Estimates of trend line slope and average solar radiation intensity divided by yearly, seasonally and northern highest minimum in the years 1951-1990

	Estimation of the slope of the solar radiation intensity trend line	Average solar radiation intensity (W/m ²)
Yearly	0.09142	221.14
Summer	0.08032	247.05
Rainy season	0. ⁺ 30782	209.64
Winter	0.13016	206.51
Month with the highest average		April (260.98)
Month with the lowest average		November (194.97)

* The trend was statistically significant at the 0.05 level.

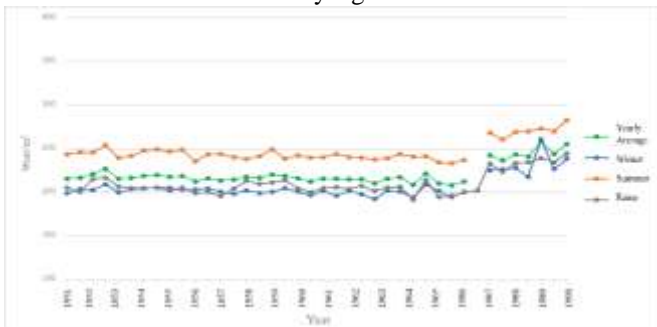


Fig. 1 Average annual and seasonal changes in solar radiation intensity in the central region in 1951-1990

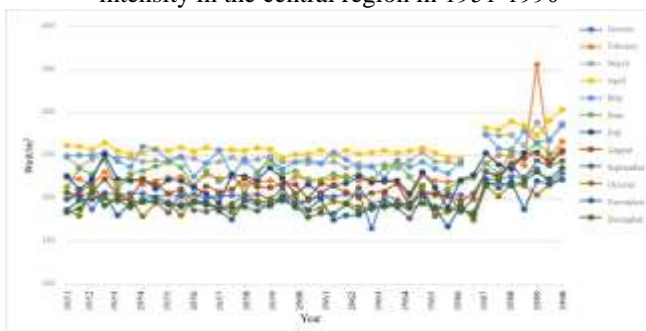


Fig. 2 Changes in the average monthly solar radiation intensity in the central region in 1951-1990

B. Trend of changes in solar radiation intensity after 1990
The annual average solar radiation intensity in the period after 1990 (1999-2017) showed a slight decrease in trend and averaged 199.36 W/m². The seasonal average solar radiation intensity was found that in summer, the highest average was 218.64 W/m², followed by winter and rainy season with averages of 186.95 and 187.56 W/m², respectively. There was a tendency to change the intensity of solar radiation significantly in the rainy season and winter. In summer, the intensity of solar radiation tends to decrease insignificantly as shown in Table 2 and Fig. 3. The average solar radiation intensity in April was the highest at 237.72 W/m² and the lowest average in December was 172.89 W/m² as shown in Fig. 4 and Table 2. The analysis revealed that the central region is facing a global dimming situation as the intensity of solar radiation tends to decrease.

Table 2 Mean solar radiation intensity and statistical test results of yearly and seasonal average solar radiation intensity in the northern region in 1991-2017

	Estimation of the slope of the solar radiation intensity trend line. (Q _{med})	Average solar radiation intensity (W/m ²)
Yearly	-0.510	199.36
Summer	-0.167	218.64
Rainy season	-0.560 ⁺	187.56
Winter	-0.900*	186.95
Month with the highest average		April (237.72)
Month with the lowest average		December (172.89)

Remark * The trend was statistically significant at the 0.05 level.

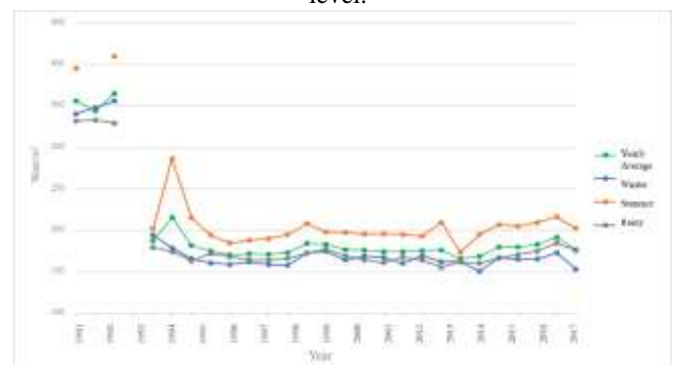


Fig. 3 Changes in average annual and seasonal solar radiation intensity in the central region in 1991-2017

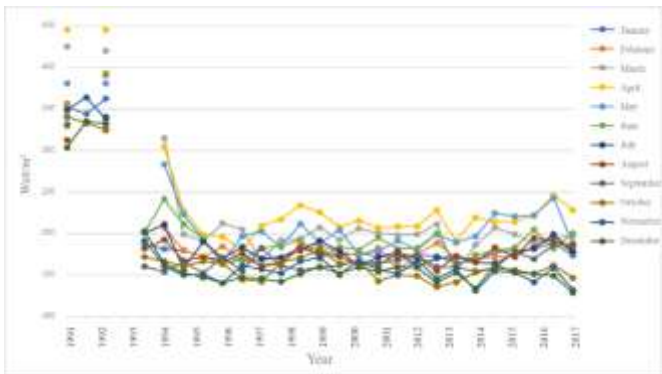


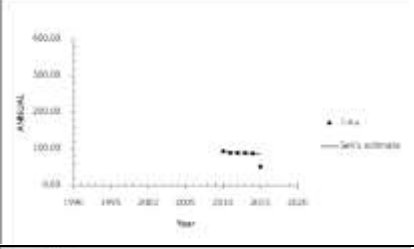
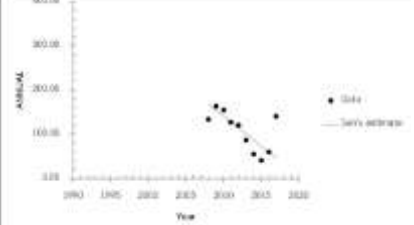
Fig. 4. Monthly average change in solar radiation intensity in the central region in 1991-2017

C. Changes in the trend of solar radiation by station after 1990

The results of the study could be summarized as a whole that the trend of solar radiation before 1990 was not significantly changed, while after 1990 there was a significant decline in terms of the local terrain and climate, as well as the density of buildings and traffic congestion in the area. Therefore, in this section, solar radiation trends must be considered in the period after 1990, as urbanization areas result in different types of dust and ash, which affected the intensity of solar radiation. Table 5 showed the estimation of the trend slope of central light from rural stations. It was found that the trend of solar radiation intensity at Nakhon Sawan Station (-0.332) and Lopburi Station (-0.081) was significantly reduced. While the trend slope estimate of the solar radiation intensity in urban areas decreased, the slope of the trendline was lower than in rural areas. Urbanization was more concentrated and produces higher air pollution than rural areas such as Khlong Chan Community Housing Station (-1.484), Wat Sing School (Singharat Pittayakom) (-2.643), South Bangkok Power Plant Station (-1.640), Bangkok - Bangna Station (-1.982), Silpakorn Station, Nakhon Pathom (-1.526) and Samut Prakan City Hall Station (-13.555). It may be noted that the slope estimates for the solar radiation trend line were significantly reduced because Samut Prakan was a highly industrialized area and an extension from Bangkok. As a result of this situation, there was a large amount of pollutants in the air and affects the transmittance of solar radiation that hit the earth's surface.

Table 5 Estimated trend slope of solar radiation intensity after 1990

Province (city/rural)	Estimated trend slope of sunlight after 1990
Nakhon Sawan (rural) $Q_{med} = -1.640^*$	
Lop Buri (rural) $Q_{med} = -0.081$	
Bangkok (City: Khlong Chan Community Housing Station) $Q_{med} = -1.484^*$	
Bangkok (City: Wat Sing School (Singharat Pittayakom)) $Q_{med} = -2.643^*$	
Samut Prakan (City: South Bangkok Power Plant Station) $Q_{med} = -1.640^*$	
Bangkok (City: Bangkok - Bangna Station) $Q_{med} = -1.982^*$	

Province (city/rural)	Estimated trend slope of sunlight after 1990
Nakhon Pathom (City: Silpakorn Station, Nakhon Pathom) $Q_{med} = -1.526^*$	
Samut Prakan (City: Samut Prakan City Hall Station) $Q_{med} = -13.555^*$	

Remark* Sig.=0.05

Measures should be taken to deal with the global dimming situation in central Thailand seriously to reduce or alleviate air pollution from transportation and industrial sectors, especially in large urban areas such as Bangkok and nearby provinces located in the central region of Thailand. Reducing private vehicle use, optimizing public transport, and relocating or limiting activities that attract non-urban travel to city centers such as moving wholesale markets away from urban centers, enforcing fiscal measures on taxation, preserving the environment from pollution sources and increasing urban green spaces should be taken into serious consideration [15]. In addition, the management of land covers by means of proper roadside planting and pushing of air pollution problems is an urgent issue of the country.

V. DISCUSSIONS

The study found that in the country as a whole, the trend of the average annual solar radiation intensity before 1990 from the average daily total irradiance estimate model did not change significantly. Before 1990, the country was preparing for the country's development by setting up the country's main city infrastructure such as transportation systems, irrigation systems, electrical systems and various energy systems, including industrial investment policies, but not very intensive in practice. Therefore, before 1990, there was no dust and other pollutants from human activities that were the main cause of the decrease in solar radiation, thus global dimming was not seen during this period. Comparatively, the nature of the change in solar radiation with other regions found that in Europe data on global dimming phenomena have been reported. The annual mean solar radiation intensity had

declined since before 1960 [16] [17] [18] [19] [20]. The main reasons for the decrease in solar radiation on Earth's surface in Europe could be summarized. [2] was indicated that the changes in aerosols were mainly due to 1) the increase in industrialization and aerosols as a product of urbanization. 2) The change in terrestrial solar radiation varies with the latitude in relation to the pollution source. According to the findings, estimates of terrestrial solar radiation were compared with estimates of fossil fuel emissions at latitude during the 1960-1990s. The latitudes showing a decrease in Earth's solar radiation and an increase in fuel emissions were approximately 35 degrees north latitude, corresponding to areas of high industrial activity and very dense populations. According to the air quality monitoring station, the country's annual average solar radiation intensity trend after 1990 showed a significant decline at 0.01 levels. Such results could be concluded that the central region is entering global dimming as solar radiation intensity tends to decrease. Compared to the situation in other regions, data from Europe after 1990 reported that Europe had shifted to the "Brightening Period", that is, surface solar radiation tended to increase [21] [22] [23] [24] because of the measures to reduce pollution of European countries and the relocation of industrial production bases to developing countries. Thailand was one of the areas for industrial development. This action began with the policy to promote industrial development from the 3rd National Economic and Social Development Plan (1972–1976) that clearly defined directions and objectives in the field of industrial development. In this regard, it was the clear start of industrial development and the most intense development in the 6th National Economic and Social Development Plan (1987–1991). Thus, it could be said that a global dimming situation in the central region is under development without effective air pollution control measures.

VI. CONCLUSION

Global dimming is a phenomenon in which the intensity of the solar radiation hitting the Earth's surface decreases. The situation had been gaining attention since 1950 and the intensity of solar radiation that hit the Earth's surface tended to decline until 1990, especially in industrialized countries. This was due to the high industrialization of the period, which was the main cause of the emission of pollutants into the atmosphere and the blocking of the sun's rays from reaching the earth until the situation had the opposite effect after 1990. The intensity of solar radiation tends to be higher in developed countries because during that time, industrial production bases were moved to developing countries. Therefore, it was generally accepted that the situation of the change in intensity of solar radiation that hit the Earth's

surface was divided by the time of the "Dimming Period" in pre-1990 and a situation called "Brightening Period" in pre-1990.

The results of a study on the trend of solar radiation intensity of the country in 1990 were used to study the change and analyze the situation of the change in the intensity of solar radiation that hits the earth's surface. The study of the trend of solar radiation intensity and the intensity of solar radiation that hits the earth's surface by considering the solar radiation estimation model and air quality monitoring station found that overall, the central region of Thailand had no significant change in the average annual solar radiation intensity prior to 1990 because in the period before 1990, Thailand was preparing to develop the country by setting up infrastructure systems in Bangkok and the main cities of the country such as transportation systems, irrigation systems, electrical systems and various energy systems, including industrial investment policies and were considered to be in the range of non-intensive practice. Therefore, before 1990, there was not much dust and various pollutants from human activities that caused the reduction of solar radiation. According to the air quality monitoring station, in the period after 1990, the country's annual average solar radiation intensity trend was estimated to decrease the slope of the trend line. It could be concluded that the central region of Thailand is in global dimming because the intensity of solar radiation tends to decrease. If considering the season that affects the intensity of solar radiation found that in winter, the intensity of solar radiation was significantly reduced.

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The Development of Mobile Game-Based Learning for Lanna Food Knowledge Transmission to Children in Chiang Mai

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Abstract— Today's teaching and learning processes need to apply technology to attract and create a suitable environment for learning. Digital games are one of the practical tools that help support teaching and learning. Various independent reports have verified the positive relationship between learning and students' engagement by using computer games to attract learners' attention and encourage learning in content. Many Lessons such as Math, science, and English classes have also benefited from digital games. Still, they appear less in cultural content, in which knowledge and cultural wisdom of the past is valuable day by day but will gradually disappear. Due to the lack of proper transmission and storage to pass on to the next generation and the lack of modern cultural learning materials. As a result, the interest and perception of the new generation's culture decreased. This study focused on developing mobile applications using game-based learning to support practicing and stimulate children's learning on Northern Thai cookery topics. There are several activities involved in designing this game, including the preparation of art style, game design documents, level design, game interface design, and evaluation system. In the school or in addition to the exhibit, users will have a creative, active learning experience using the software. They will experience each stage of cooking from the selection and preparation of raw material, ingredients, and kitchen utensils, including cooking techniques and methods according to Northern Thai recipes inherited in the form of a simulation. The game will allow children to practice each step of the local cuisine in the Chiang Mai context and eliminate the complex problem during the long process and tight sequences of the cooking. The method used in designing the application is interviews, paper prototyping, and usability tests on player experience. Studies based on these results will improve the playful application and suggest future work directions.

Keywords— Lanna Cuisine, Game-based learning, Mobile Application, Enhanced learning, Transmission

I. INTRODUCTION

Traditional or local cuisine in each community is a reflection of the identity, culture, and heritage. The cuisine and eating habits represent a community's identity, age, ethnicity, gender, locale, occupation, and religion [1]. Then, preserving food practices is one of the most straightforward approaches to grasp the cultural origin and history that is important for every ethnic group. Changes in food consumption and eating habits have been recorded to follow the global trends, especially social transition and worldwide information. Local food increasingly has a bearing on the impact of other food cultures and globalization. Including the people of this generation have embraced highly packaged and convenient pre-prepared foods such as fast food, which makes them uninterested in traditional cookery. That is another factor contributing to how young people find it difficult to engage in traditional and domestic cooking. Some ethnic groups have

begun to lose conventional foodways because several elders are finding that they can no longer pass on traditional expertise to the young generations [2] [3].

Lanna cuisine in Northern Thailand is unique gastronomy and has been passed down from generation to generation over a long time. The cooking preparation, ingredients, and flavor, which expressed knowledge combined with traditional culture, would be a vital issue for introducing the young Thai generation to the perceived background, preparation, and consumption of traditional food in Northern area. But among influences from other food cultures, such as Western food, European food, Japanese food, Chinese food, and convenience food is gradually expanding. Traditional Lanna cuisines are at risk of becoming obsolete since there are not enough people among the younger generation who are interested or lack apprentices to properly teach the traditional cookery techniques. In the past several years, the government, the private sector, and the involved have established organizations, integrated schoolings, and created activities to enable the young Thai generation to understand Thailand's

traditional cuisine for inherited and to apply in the future. However, as technology advanced in the modern era, new types of media evolved and are gaining popularity today. The youth regard cultural material and education as being outdated due to their curiosity and accessibility.

To cope with the above-mentioned issues, many sectors use information technology and digital media to be used in the teaching process for the students to learn most effectively. That is not limited to teaching in the classroom but extends to the improvement of education that allows learners to learn with lifelong learning features, which is an essential foundation for self-education and the development of potential to be comparable to other countries in the future [4]. Technologies and associated resources are incredibly beneficial for assisting instruction in various topics at various learning stages [5]. Young learners benefit from the advancements of education technology, such as interactive media, digital games, and mobile technology, including training resources, which have entirely changed teaching in the 21st century. Numerous scholars have advocated for the use of digital games to help in the effectiveness of learning. For example, the key elements of digital game are fantasy, inquiry, and challenge; these are all qualities that engage students and keep them [6] [7]. Similarly, Hain ey et al. (2013) proposed six motivating factors; fantasy, challenge, competition, curiosity, control, and recognition, in gaming [8]. According to Kiili (2005), this study found that games provide the essential criteria of a learning atmosphere, and they have engaging and enjoyable educational opportunities for students [9]. While Giannakos (2013) presented students' excitement, happiness, and emotion were all influenced by the educational game, which resulted in improved student performance [10]. Although much research shows the benefits of games for enhancing student engagement and encouraging learning achievement, most of the game content in the studies is academic content, such as science, math, or English, none of the traditional cookery content. Consequently, this study aims to address a gap in the literature.

As mentioned above, the digital game will play an essential role in motivating learners to interest in local food knowledge and local food practice. Although, many digital food games have been created and sold in the global market. Most of the food game is still American recipes, European cuisine, and Japanese cooking, but none of Thai cuisine. Consequently, this study aims to develop a mobile game called LannaCuisineGame (LCG), simulating the Lanna cooking process and creating a good player's experience of engagement with the game through cooking gameplay activity.

II. RESEARCH OBJECTIVE

1. To design and develop game-based Lanna food knowledge learning for the children.
2. To evaluate the player's experience of game-based learning for Lanna food knowledge transmission to the children.

III. LITERATURE REVIEW

A. Significant of the food knowledge transmission

Cook and Crang (1996) state that food can be "place cultural artifacts," serving as powerful symbols of identity [11]. Food knowledge is about ingredients and methods of cooking food, the reflection of cultural history and tradition of community, and the wisdom of ancestors who invented these healthy foods [12] [13]. Similarly, Kwik, J. C. (2008) said traditional cuisine reflects ethnic identity and is often associated with religious rituals [14]. In the past, the transmission of food knowledge was passed down from generation to generation in three methods; observation, word of mouth, and practical activities [15]. The responsibility for passing culinary knowledge to future generations rests with communities and ethnic groups since it is essential for the preservation of culinary cultures [16]. The United Nations stressed the importance of preserving traditional food knowledge to new generations, carrying out deep cultural and ethnic identities for themselves or as peoples [17] through the International Workshop on Traditional Knowledge.

B. Lanna cuisine (case study: Chiang Mai)

Lanna cuisine is the local recipe in the upper northern region of Thailand known as the Lanna empire in the past. The uniqueness of the Lanna people, especially local cuisine, set them apart from other countries worldwide and could be considered cultural resources gathered and handed on continuously from past to present [13]. The influence of the various indigenous cultures and human diversity in the Lanna empire, such as Thai Yuan, Thai Lue, and Thai Yai affected the local cuisine's flavor and variety, making the local northern food's identity unique [12]. So, the suitable combination of knowledge in cookery reflects past cultures and ways of living in the context of coexistence in Lanna communities and ingredients, local vegetables or seasonings, from local raw material. These are making local northern food a valuable cultural item of the Lanna empire.

According to Narong Sikkharam (2018), Lanna food can be divided into three-term seasons; winter, summer, and rainy because of geography, climate, occupations, livelihood, and interaction of northern Thai people and other regions involved in Lanna cooking [18]. Another approach, Lanna food can be categorized into three types, including rice,

vegetables, and meats. Generally, Lanna people define the food's name based on the cooking method. For this reason, several scholars classified Lanna food into various types, not including dessert.

C. Definition of game-based learning

Games-Based learning (GBL) is a basic form of learning that helps to develop learners' learning quickly. It is the method of learning that is the most in line with the human learning nature because humans enjoy playing games and always view them as games. According to a Dutch historian and cultural theorist [19] has described humans as playable creatures from the past, so playing games is an ancient and integral part of human civilization. Prensky (2001) describes the GBL as a learning experience in which game material and gameplay aid in developing knowledge and training, using games as problem-solving environments and teaching spaces [20]. While Sam S. Adkins (2017) defined GBL is a method of transferring knowledge through gaming that allows users against themselves or others and has rewards or punishment mechanisms that effectively function as an evaluation method to measure mastery [21]. In conclusion, GBL can be engaging with individual learners because the game design has a deep learning focus in the context of the game. The player can learn while enjoying playing games. In addition, game-based learning is a process where a user interacts and learns together. Hence, GBL is a practical method to design a tool for learning that supports student learning and is very appropriate today.

D. Self-motivation reports

SDT stands for the Self-Determination Theory [22] that provides a comprehensive method for studying human drive and personality. A variety of fields of research, including athletics, culture, and recreation are results of the success of SDT implementation. The power that drives people forward is self-motivation – it is our inner desire to accomplish, grow, evolve, and move forward. Similarly, when players interact with the game system to immerse themselves in playful activity in the game environment, the game gives some experience to players: enjoyable, exciting, challenging, etc., that affect their need to confront the next obstacle in the game. So, a self-motivation report is the resulting measurement of player experience. Przybylski, Rigby, and Ryan (2010) study player motivation when playing video games by applying the SDT to evaluate [23]. A method of evaluating gaming experience from a game design standpoint is called the Player Experience of Need Satisfaction (PENS) [24]. The competency, autonomy, connectedness, control, and presence of PENS are used to rate the experience of players. In detail, the major three aspects identified by Rigby and Ryan (2011) are the interface and the players, the game action, and the

players' psychological demands which are all found in the game environment [25].

IV. RESEARCH METHODS

A. Research design and process

The researcher uses practice based [26] and qualitative research and collected the data from an in-depth interview, usability test, and experimental design by interview forms, observation, and a questionnaire. Thirty-four key informants give qualitative and quantitative data that the researcher analyzed by using content analysis. There are four stages in this study methodology. Before the game creation, the researcher studied documents of Lanna cuisine from primary and secondary sources such as research books, articles, and other related records, including interviewed Lana food specialists to analyze and extract Lanna's food knowledge as a concept design for the food game. Next, using game theory and the Activity Theory-based Model of Serious Games (ATMSG), the game designer, instructor, and food specialist cooperated to design and develop the cooking simulation game. The last stage is the experimental design that consists of two sessions. Playing session is the first activity that the key informants play the Lanna cuisine game, and the observation team recorded the player's interaction. Completed the first session, the player had to answer the question to the interviewer and do a usability test questionnaire to evaluate the player's experience.

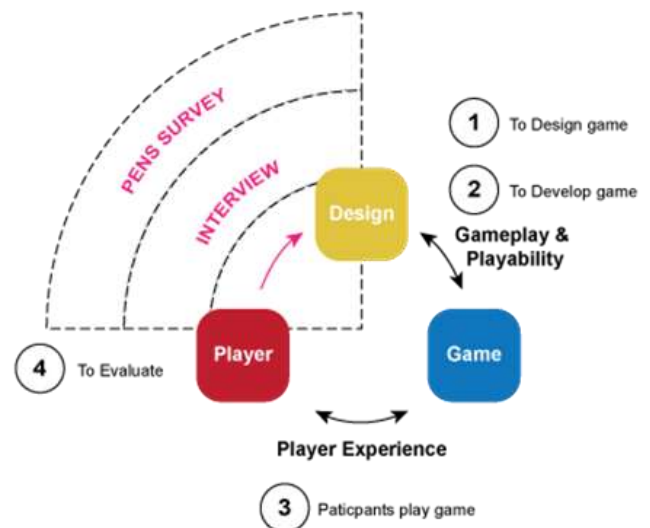


Fig.1 Research method

B. Experimental design

Participants

The participants were 34 students from a public secondary school in Chiang Mai, Thailand. They are an average age 16, and ages range from 15 to 19 years old and never learned and cooked the Lanna cuisine before, but they had consumed some Lanna dishes. Most of the participants (58.8%) indicate that they sometimes have cooked with their family; 35.3% show that they, not often cooked by themselves, and 5.8% indicate that they often cooked by themselves or with their family. Nearly 40% of players reported that they spent less than an hour playing games; 20.6 percent stated that they spent two hours playing games; and 29.4 percent revealed that they spent over three hours playing games.

Measurement tools

The researcher observed participants examine the relation of achievement and enjoyable experience while playing the games to capture their behaviors and reactions. When they accomplish the game, they have to answer the questions to the interviewer and assess the motivation of the gameplay experience. This paper used the Player Experience of Need Satisfaction (PENS) survey (Przybylski, Rigby, and Ryan 2010). Each of the 21 PENS questions was composed of statements that were rated on a Likert Scale (Vagias, Wade M., 2006). There are five subscale of the PENS model that evaluates a player's experience. The Competence scale evaluates players' impression of their ability to do something in the game. The autonomy scale measures the player's value of freedom and their chances of pursuing activities they like. The relatedness scale attempts to capture the desire to communicate authentically and supportively with others. The presence scale can divide into three parts: physical, emotional, and narrative. It measures the experience of immersion in the gaming environment. The scale of Intuitive Control in gaming environments evaluates players' control over their character's actions.

Experimental procedures

The instructor introduces participants to the information of the LannaCuisineGame (LCG) and provides a sheet describing the activities given to them, followed by completing the general information before starting learning active ities (15 mins). After that, the instructor divides the participants into groups; each group is five players and one staff. The players, then, will play the LCG with smartphones provided by staff. The researchers required the participants to play two rounds of the game. They play freely in the first round, allowing them to understand the game's interface and structure (15 mins). In the second round, the instructor assigns

all players to play the same recipe of Lanna cuisine and aims to obtain the highest score (15 mins). Each round, there is staff to observe players and note to collect data. Players spent around 30 minutes playing, and when the game ended, they answered an online questionnaire on Player Experience Needs Satisfaction (PENS) (20 mins). Lastly and most importantly, the researcher team interviews players to obtain qualitative data.

V. RESEARCH RESULTS

A. Results Lanna food knowledge analysis

The first approach in the research is to analyze related documents and interview experts of Lanna studies about Northern Thai food and then brainstorm among researchers to select a list of Lanna recipes, focused on main dishes, and extract contents to design games. Narong Sikhiram (2018) states that the food source of Lanna's people, cooking techniques, beliefs and wisdom about food, and other food cultures' impact are all essential transferable Lanna knowledge [18]. Due to the limitation of time and resources to develop the game, researchers prefer to scope the Lanna food knowledge in this game as:

1. The local ingredients and food sources of Lanna People (eg., Fig.2: A and C is the Weaver Ants and their eggs, B and D are Melientha suavis Pierre)
2. The preparation and cooking style of Lanna cuisine (eg., Fig.3: This food is cooked from mixing water, curry paste with the main ingredients of Weaver Ants eggs, Melientha suavis Pierre, shallot, garlic, fermented beans, shrimp paste and fermented fish)



Fig.2 An example of Lanna seasoning ingredients



Fig.3 An example recipe of Lanna cookery

B. Results of Design and development mobile game as virtual cooking

Digital game-based learning (DGBL) is a practical method to design a very appropriate tool to support children's learning. Similar to Aslan, S. (2011) said, when children play the digital game, they are competitive, inquisitive, inspired, persistent, and discover new information [27]. Moreover, the U.S. Department of Education (2010) suggests that DGBL could provide students with more exciting and empowering environments and point out the need to research the following areas: simulations, virtual worlds, and games [28]. It is necessary to create digital game-based learning to enhance children to acquire local ingredients, preparing food and cooking methods. Therefore, this study designed and developed a Lanna cookery game based on the concept of a virtual kitchen consisting of Lanna recipe menus, including scenarios simulation of step-by-step Lanna cooking styles. The goal of the game is to encourage children to get keen to learn [29] [30] and to encourage their learning and constructing knowledge by themselves [31]. In short, the functions of the Lanna cooking game are to stimulate the players to observe, practice, and understand the steps of the Lanna cooking process with virtual kitchen scenarios in the game. Also, it will allow them to trial and error [32] each cooking step to gain the right Lanna food knowledge.

The design prototype of the mobile applications was named LannaCuisineGame (LCG) that simulates a cooking step of traditional foods in Northern Thailand. This game will help players gain further insights from reading books or visiting museums that exhibit only cultural items explained by text, audio, or video clips. The design team starts to create the game architecture that illustrates the all game system consists of three main parts:

1. The game interface presents the game's scenario, allowing children to interact with the cooking simulation gameplay of various recipes.

2. The database of the game comprises the player's information and point and recipe information.
3. The game's report will show all points and achievements that the player has already made in each cuisine and time spent which player plays.

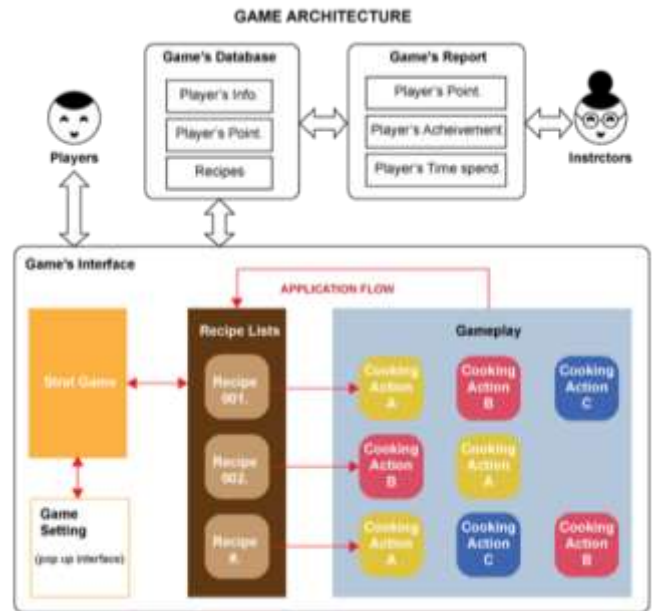


Fig.4 The Game Architecture

The design team creates the tasks in the game based on the action of cooking styles. Increasingly complex culinary techniques are being added to each step of cooking. As a result, the players must employ specific skills from a prior recipe to accomplish another dish. This feature motivates them to do complex recipes and acquire food knowledge through the gaming process

Analyzing the game flow diagram, the researcher used the Activity Theory-based Model of Serious Games (ATMSG), which offers a framework for contemplating the connection between the different components of a serious game and the education game objectives. The game designers can use this model to grasp the structure of learning games better and explain the function of the teacher or instructor in the game. [33]. The ATMSG model had been used to support the food game design process. The researcher extracted the components of gaming, learning, and instructor to the game flow diagram and matched the taxonomy of serious game components directly connected with the node of the game flow diagram, including the description, which is how its use supports the fun and instructional purposes of the game (Fig.5).

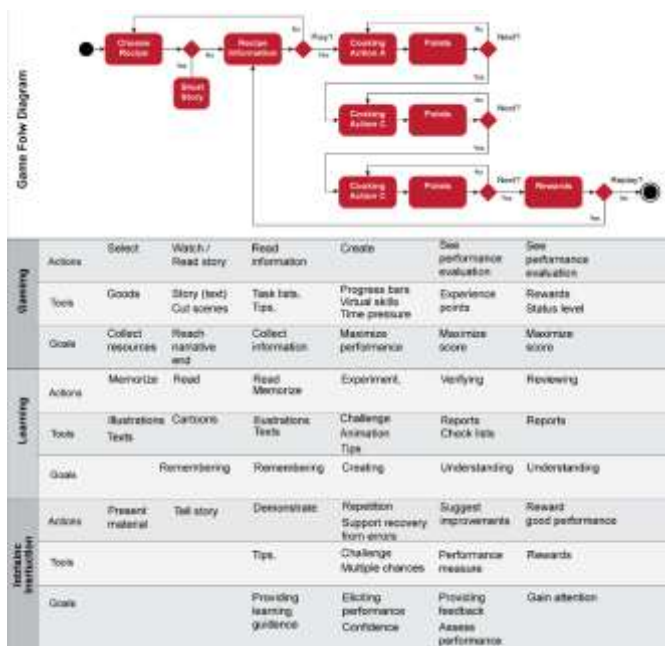


Fig.5 Game flow diagram and Activity Theory-based Model of Serious Games (ATMSG)

Gameplay: The researchers analyze and extract Lanna's food knowledge (ingredients, recipes, preparing methods, and cooking styles) to design the gameplay. Fabricatore, C. (2007) describes the gameplay as the collection of activities carried out by the player and other individuals in the virtual world in reaction to the player's actions or as autonomous courses of action that contribute to the liveliness of the virtual world [34]. As a result, the gameplay is how the players do the activities of preparing food and cooking local cuisine to obtain the highest points and the rewards: ingredients, and utensils, including to unlock new local cuisine to the next game level.

Game Mechanics: Both terms are fundamental concepts to form the gameplay definitions are interactivity and activity. Fabricatore, C. (2007) states game mechanics are the tools for gameplay or how players interact with the game [34]. The researcher applies the concept from a Lanna food knowledge analysis to design the game mechanics, focusing on the food ingredients, the kitchen utensils, and the cooking style because they are the critical elements of cooking. The food apprentices could learn to estimate the appropriate number of ingredients and learn to use the kitchen utensils to suitably cooking styles for each recipe. For example, the knife is the object mechanic that the player uses to interact with the ingredient to be the cut, slice, chop, hit, or peel. An onion that the designer determines to be game object mechanics is that the player can use the knife to cut onion, use the hand to pick it into the pot, or use the heat to be the cooked onion,

including the cooked level is also the object mechanics, especially ingredients.

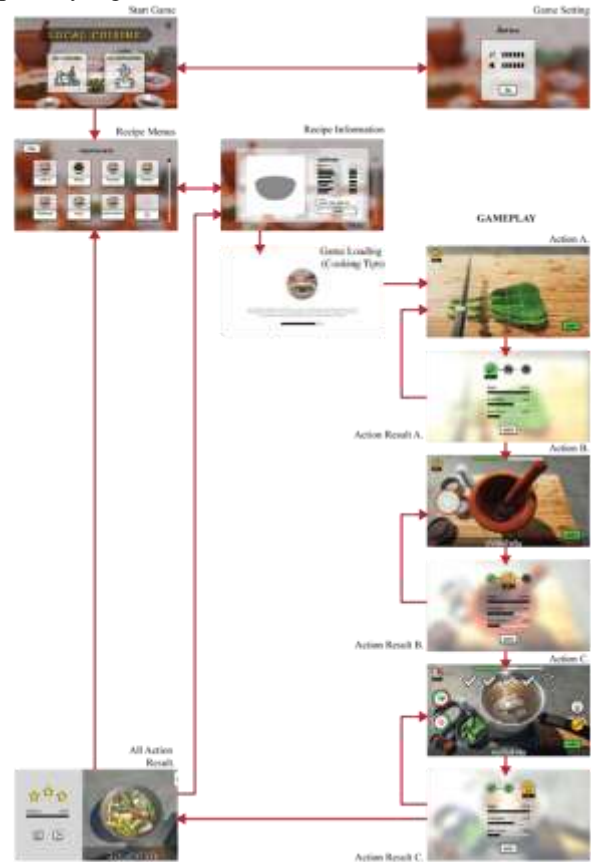


Fig.6 The Flow of LannaCuiSineGame (LCG) interface Game Interface and Flow: The game designers demonstrated the game interfaces in the simulation game scenarios by following the Lanna cooking phase. To earn the highest score, the player must plan and cook Lanna food for each recipe. As learners complete the cuisine, they receive experience and rewards that help them progress through the game's stages. Additionally, the game adds non-player characters who provide guidance, helpful tips, and activity suggestions, including assisting the player as they encounter difficult challenges during the food practice simulation.

The designer team decided to install LannaCuisineGame on smartphones and tablets. The Lanna cuisine game's visual style used three-dimensional software, creating graphics and illustrations that are not realistic but cartoon-style, which is forming the 3D objects and painting on their surface to create materials and textures. Experts agreed that the cartoon or fantasy style is suitable for children because it will attract their attention, focusing on content and building creativity. Similarly, the current education media used cartoon and fantasy styles to be the art direction of the visual graphic design and narrative illustrations. The result found that each

traditional cuisine had a different mood and tone depending on its background, food resource, flavor, etc. So, the concept of mood and tone to create the Lanna food game graphic, which was designed for children, was a warm and soft color to make an enjoyable casual image, including using the earth tone to create an ambient Lanna in the kitchen simulation according to the experts' opinion.

The game layout design that shows how the game display to users is divided into three sections. In the first section, the interaction is where players can interact with game objects and the virtual buttons to control the game as they want to do under the game rules. Second, the user interface part consists of the text, illustrations, graphics, and animation, which provide the instructions, narrate the stories, show updated object status, and report the feedback to the players. The last section is the game environment that enhances the player's immersion with Lanna cooking by kitchen simulation and ambient simulation.

In the game design, the gameplay is how the players prepare food and cook local cuisine to obtain the highest points and the rewards: ingredients and utensils, including to unlock new local cuisine to the next game level. The goal of the Lanna cuisine game is to get a high score for each recipe, and the player becomes the Lanna cuisine chef. The game rules are to do sequence activities, use the kitchen utensils that suited the cooking type, select to mix absolutely the ingredients and do the cooked well. The researcher applies the concept from a Lanna food knowledge analysis to design the game mechanics, focusing on the food ingredients, the kitchen utensils, and the cooking style because they are the critical elements of cooking. Consequently, the mechanics in this game divide into two types. One is ingredient mechanics, which can be measured, cooked well (or inadequate), separated, and transformed. The other one is kitchen utensil mechanic which players can use followed a function that simulates from the real world.

C. Results of motivation (PENS)

According to the 34 participants' survey answers, the majority scored the game applications positively, showing that they were satisfied with LCG. The PENS survey consists of five sub-scales containing twenty-one objects, and the summary descriptive statistics show in Figures 12 and 13.

The intrinsic need to feel effective in what we do can be described as competence. Participants nearly 45% agree the C1 and C2 item makes them feel competent, very capable and effective when playing the game. One-third of the participants agreed with the C3 item that their abilities are suitable for the game challenge, equal to the numbers of the players indicating that they are undecided to agree or disagree.

Autonomy is the experience of choice in one's decisions and

actions freely. When someone is able to make their own choices and pursue their interests, they are more energized and motivated to do the things they like. The average number of the participant's agreement (35.29%) and strong agreement (41.17%) is relatively close for all items in the autonomy of playing the game.

The relatedness describes the intrinsic need to communicate authentically and supportively with others. The graph of Relatedness of the PENS shows the aggregate of participants that disagree and undecided to agree or disagree on the R3 item (I don't feel close to other players (-)) is more than 60%. Half of the participants (55.88%) undecided to agree nor disagree on the R1 item (I find the relationships I form in this game fulfilling). Opposite to the R2 item, 44.12% of participants indicate that they find the relationships they form in this game necessary.

Intuitive control is the experience of the user to control character and object in the game to do something in the game environment. All three intuitive control items show a high average score of 40% of the participants undecided to agree or disagree with effectiveness to control the game, followed by the topic that they agree that intuitive control of the game is an average score of 28.4%.

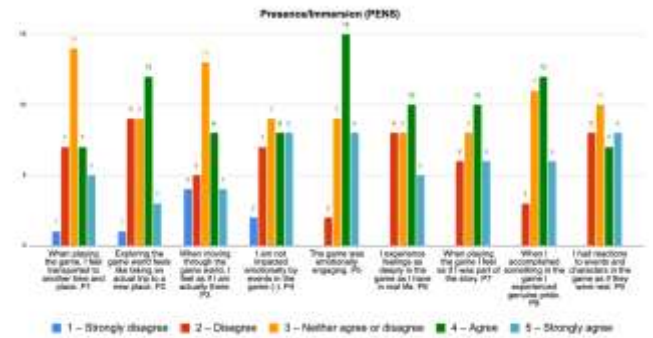
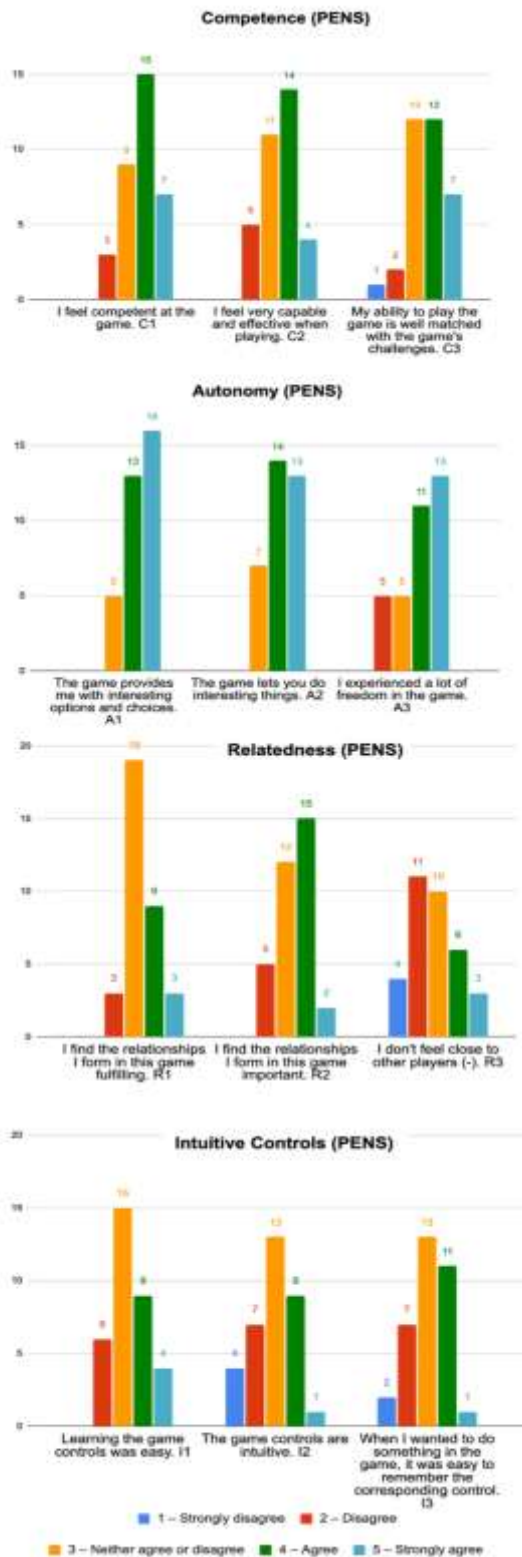


Fig. 8 The result of PENS survey (presence/immersion)

Fig.7 The Result of PENS survey (Competence, Autonomy, Relatedness, and Intuitive control)

There are five items (P2, P5, P6, P7, and P8) that the participants decided to agree with the Presence and Immersion of the PENS bar charts. The highest number (44.12%) of the graphs is the game was emotionally engaging (P5) to players. Followed by the two items, the P2 as to explore the game world feels like taking an actual trip to a new place, and the P8 is the players experienced genuine pride when they accomplished something in the game which both of its show the number of participants agreeing is 35.29%. The last two items, the P6 is the players experience feelings as deeply in the game as they have in real life, and the P7 is the players feel as if I was part of the story when playing the game which the couple shows the number of participants agreeing is 29.41%

VI. DISCUSSIONS

The main objective of this study is to provide a learning game for children that have to design by the method of identifying and classifying local ingredients and break down the traditional cooking sequence from Lanna cuisine. The researchers use the ATMSG model [33] to define how to develop a digital learning environment based on the simulated Lanna cooking scenario and appropriately identify and match critical factors, gaming components, and learning components to develop food learning games for children.

Following the literature review and the output of the developed game prototype, the game designers must consider the principles of game development and several essential elements. The comic story, which narrates about Lanna's food knowledge in games, performs as the media to communicate the content, such as a food background, a food resource, a cooking method, etc. On the other hand, gaming fulfills its purpose of providing students with a learning setting that includes practice and assessment through cooking simulation, both of which serve to help students acquire the required

information of local cuisine. Similar to the previous studies report [35] [36] [37], which indicated the games always provide a formal and informal assessment of players' knowledge and abilities. Additionally, the game integrated the cooking guides with a progress bar to balance between guidance and play freely. Because the freedom to learn is essential, the Lanna cuisine game allows them to make mistakes [38] in every cooking step, and they can always replay again. Not only does the game assist learners, but it also motivates them to remain active learners. Similarly, Prior research has shown that games can motivate learners and offer them a more practical approach to explore the learning environment by completing tasks [39]. Moreover, a time limit game mechanism adds to increase the game's complexity and challenge. The game received overwhelmingly good comments from the participants, and a few of them reflected that they would apply their food practicing experience to real life.

Typically, the new generation in Thailand, most of them play the game created by the other countries, e.g., Japan, Korea, America. As a result, they have given that cultural influence and are familiar with the internationalization of graphic games. However, the designers all agree on the advice of experts that the uniqueness of the Lanna style could apply to graphic game design, which appeals to children. They created graphic games referring to the Lanna cooking context, such as cooking, kitchen utensils, ingredients, etc. In addition, they design the character to stimulate learners' motivation and curiosity. The results are consistent with those of the previous studies [40] [41] which points out the alternative of teaching through interactive video games in digital environments, particularly virtual environments, has the distinct advantage of making it easy for students to learn, think, understand, and practice. The rich graphics increased the students' understanding and skill in performance has made it easier for them to improve their performance.

VII. CONCLUSION

This research provides the first mobile game-based learning experience for Lanna cuisine, which participants well appreciated. The researchers design and explore several areas of game playing that may assist youngsters in their local food knowledge pursuits. The combination of mobile technology, the serious game model, and the game-based learning method generates enthusiasm and motivation for children who have grown up in the digital age to learn the traditional techniques of Lanna cooking in an enjoyable approach outside the classroom. The application will benefit more Thai children, especially the new Lanna generation. Creators believe this innovative pedagogical approach to

transmitting the other cultural content makes learning fun. Anybody learns the best when they are having pleasure.

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Application of Energy Conservation Measures: In a Case Study of Fortune Town Shopping Center by Installing a Motor Speed Control Unit, a Cool Water Pump and a Big Cleaning Circulate of Package Water-Cooled of Air Conditioners 75TR and 96TR

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Abstract— This research aimed to study the guidelines on energy conservation according to the law in Thailand related to the Energy Conservation Promotion Act. The establishing appropriate measures for energy saving and study the cost-effectiveness of each economic investment measure., In a case study of the Fortune Town Shopping Center building in Bangkok. We studied this study from the installation of the motor speed control unit, cold water pump, and Big Cleaning of Circulate Package of Water-Cooled of air conditioners 75TR and 96TR. The results of the study showed that taking measures with installing a Variable Speed Drives (VSD) control unit to the secondary pump of the Chiller Plant System, and the energy-saving effect of measurement, can save energy 179,514.30 kWh/year (37.40% energy saving) with an NPV value of 727,032.91 baht/year, payback 0.41 year. When studying the measure of Big Cleaning Circulate Package Water Cooled, air conditioner sized 75TR, and 96TR. We found that the comparative electric energy between air conditioners before and after improvement. The study results can save electricity up to 738,466.26 baht/year, the investment value of 2.82 years. We can conclude that efficiency and capacity, using both measures, can save over 1.5 percent of energy. Both measures can a prototype of energy saving for buildings or other organizations

Keywords— Energy Conservation, A Motor Speed Control Unit, Cool Water Pump, Air Conditioners, Energy Conservation Promotion Act

I. INTRODUCTION

Energy is one of the main factors for living as well as an impact on the economic growth of each country. Thailand, as a developing nation, is improving education, science, and various fields of technology, for example, engineering, medical, industrial, and building technology. These technologies are essential to the energy conservation system which helps reduce economic costs and save energy.[1,2] It is also the main support for business expansions, especially building business industries such as office buildings, hotels, industrial complexes, and shopping centers. Moreover, the

more extensions of shopping centers there are, the more energy consumption will be. Constant energy consumption of shopping centers is being considered as a national issue that influences national economics significantly.[3] As shopping centers are large buildings and provide daily long-hour service, they consume a great deal of energy. According to Energy Conservation Act 1992, shopping centers are controlled buildings where an energy conservation system is necessary.[4]

The objective of this study is to find energy conservation solutions for buildings according to Energy Conservation Act 2007 (Issue No. 2) and set proper standards for shopping centers. Also, analyze cost and economic suitability to set

standards of energy conservation for shopping centers and to provide knowledge and understanding in energy conservation and saving energy to save the world.

II. MATERIALS AND METHODS

2.1 Energy planning and review

The development used indicators of the current energy source building. Then evaluate of Significant Energy was used by considering energy consumption opportunities with Considering scoring according to the criteria, As shown in Table 1. After that, The evaluation by a Significant Energy Use energy performance assessment with comparing energy efficiency and machine life. [5, 6] Record opportunities for improving the energy performance of significant energy use characteristics; By considering scoring according to the criteria [7, 8, 9], Shown in Table 2. The finally, a documented methodology used to improve energy performance. Perform calculations and evaluations of savings Investment amount payback period. Including, how to verify the results of each measure.

Table 1 criteria For Evaluating Significant Energy Use Characteristics

(1) Power consumption	kWh/Year	Score	Rating scale
1. Minimal	<80,000	1	Minimal
2. Low	80,001 - 200,000	2	Low
3. Moderate	200,001 - 500,000	3	Moderate
4. More	500,001 - 900,000	4	More
5. Most	>900,000	5	Most

(2) Hours of use	hour/Year	Score	Rating scale
1. Minimal	<1000	1	Minimal
2. Low	1000 - 2999	2	Low
3. Moderate	3000 - 4999	3	Moderate
4. More	5000 - 6999	4	More
5. Most	>7000	5	Most

(3) Improvement potential	Opportunity for improvement	Score	Rating scale
1. Minimal	Minimal improvement	1	Minimal
2. Low	Little improvement	2	Low
3. Moderate	Moderate	3	Moderate
4. More	Much improvement	4	More
5. Most	Most updated	5	Most

Annotation : The determination of any energy use characteristic has a score of more than 50 points; interpreted the result to be a Significant Energy Use.

TABLE 2 Criteria For Improving Energy Performance Of

Opportunity for improvement	Score			
	1	2	3	4
1. Potential for improvement	Few opportunities improve	Moderate improvement opportunities	Opportunity improve a lot	Most updated opportunities
2. Investment budget (bah)	> 5,000,000	1,000,001 - 5,000,000	500,001 - 1,000,000	< 500,000
3. Economical effect (Bath*/Year)	< 100,000	100,000 - 200,000	200,000 - 300,000	> 300,000
4. Payback period (Year)	> 4	2 ~ 4	1.5~2	<1.5

Significant Energy Used Characteristics

Annotation : *31.36 Thai Baht (฿) equals as 1 United States Dollar (\$)

**The score is sorted in descending order, as a selecting at least one measure to implement and measures to conserve energy without using machinery/equipment. But there is great potential and opportunity for improvement. It can saved a lot of energy and was a measure that can be easily performed without affecting the production process. And the results of the measures can be analyzed and implemented.

2.2 Economic data analysis

The Collect electricity bills and explore and collect basic information of machinery with the following details.[10, 11, 12, 13] As shown in Table 3. and Table 4.

This data of research was kept and calculating by used formular of Payback Period = PB, Payback period = Investment / Annual Income [11, 14], Net Present Value (NPV), Evaluate the initial investment, The project life is 5 years.[15,16], Calculate annual cash inflow, Discount Rate 10%, Net present value = present value of net cash flows over the life of the investment project, and PV Factor. [12, 17, 18]. The finally, make a report.

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TABLE 3. Basic Information Of Chiller Plant Systems In Plaza Department Stores

Machine / Main Equipment Name	coordinates		Performance value	
	Size	Unit	Actual use	Unit
Chiller-02	450	TR	0.75	kW/TR
Chiller-03	450	TR	0.63	kW/TR
Chiller-04	450	TR	0.69	kW/TR
Chiller-1/1	285	TR	0.89	kW/TR
Chiller-1/2	285	TR	0.89	kW/TR
Cool water pump 01-01	11	kW	88.12	GPM/kW
Cool water pump 01-03	11	kW	84.31	GPM/kW
Cool water pump 01-04	11	kW	77.75	GPM/kW
Cool water pump 02-01	45	kW	21.87	GPM/kW
Cool water pump 02-02	45	kW	20.20	GPM/kW
Cool water pump 02-03	45	kW	20.48	GPM/kW
Cool water pump 02-04	45	kW	21.26	GPM/kW
Coolant pump COP-01	30	kW	21.27	kW
Coolant pump COP-02	30	kW	27.96	kW
Coolant pump COP-03	30	kW	28.82	kW
Coolant pump COP-04	30	kW	21.27	kW
Cooling Tower 1	500	TR	46.00	%
Cooling Tower 2	500	TR	54.00	%
Cooling Tower 3	500	TR	53.00	%
Cooling Tower 4	500	TR	53.00	%

TABLE 4. Basic information of package water cooled system, it mall section

Machine / Main Equipment Name	coordinates		Performance value		
	Size	Unit	Actual use	Size	
Cooling No.1	Tower	1000	TR	74.47	%
Cooling No.2	Tower	1000	TR	74.47	%
Cooling No.3	Tower	1000	TR	74.47	%
Cooling No.4	Tower	1000	TR	74.47	%
Cooling No.5	Tower	1000	TR	74.47	%
Coolant COP-01	pump	55	kW	36.70	GPM/kW
Coolant COP-02	pump	55	kW	36.70	GPM/kW
Coolant COP-03	pump	55	kW	36.70	GPM/kW
Coolant COP-04	pump	55	kW	36.70	GPM/kW
Coolant COP-05	pump	55	kW	36.70	GPM/kW
Coolant COP-06	pump	55	kW	36.70	GPM/kW
Coolant COP-07	pump	55	kW	36.70	GPM/kW
Package Cool AC05	Water	75	TR	0.73	kW/Ton
Package Cool AC06	Water	75	TR	1.11	kW/Ton
Package Cool AC07	Water	46	TR	2.79	kW/Ton
Package Cool AC08	Water	15	TR	-	kW/Ton
Package Cool AC12	Water	28	TR	-	kW/Ton
Package Cool AC33	Water	75	TR	1.81	kW/Ton
Package Cool AC34	Water	75	TR	2.72	kW/Ton
Package Cool AC35	Water	75	TR	1.28	kW/Ton
Package Cool AC36	Water	96	TR	0.57	kW/Ton
Package Cool AC37	Water	46	TR	0.68	kW/Ton
Package Cool AC38	Water	75	TR	0.82	kW/Ton

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TABLE 4. (Continue) Basic Information Of Package Water Cooled System, It Mall Section

Machine / Main Equipment Name	coordinates		Performance value	
	Size	Unit	Actual use	Size
Package Water Cool AC43	96	TR	0.92	kW/Ton
Package Water Cool AC44	96	TR	1.16	kW/Ton
Package Water Cool AC45	75	TR	1.69	kW/Ton
Package Water Cool AC46	96	TR	1.41	kW/Ton
Package Water Cool AC47	96	TR	1.54	kW/Ton

III. RESULTS AND DISCUSSION

3.1 The result of general information of the organization

The organization is a jewelry factory. The area of the plaza, including every floor, is approximately 84,239.67 SQ.M. The whole area can be divided into the area with air-conditioners, 69,394.62 SQ.M, and without air-conditioners, 14,845.05 SQ.M. The area of IT mall is around 43,677 SQ.M, divided into with and without air-conditioners, 42,947.86 SQ.M. and 729.14 SQ.M, respectively. Fortune Town Shopping Center opens 12 hours a day. Proportions of electricity consumption in the building are as following in figure. 1.

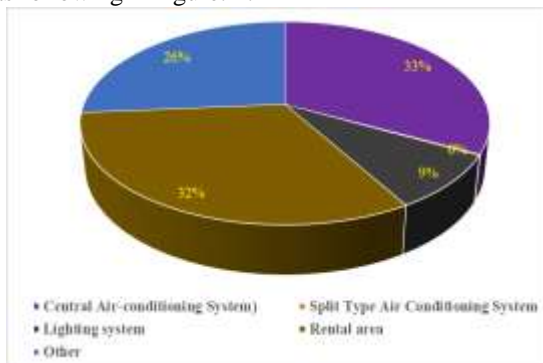


Figure 1. Amount and proportion of energy classified by system used in Fortune Town shopping center and plaza. Energy used separation system to analyze the significant energy consumption of the system, with 34% of water coolers consuming in the largest energy; The shopping malls used 80% of the total area of air conditioning. (84,239.67 square meters), with the parking area wasn't used air conditioning. Thus causing a lot of energy consumption in the chiller. Systematic energy consumption fractionation for the analysis of significant energy consumption of the system.

The air conditioners (Package Water Cooled) used up to 34% of energy as the shopping center. Air conditioning is used 98% of the area 43,677 square meters, thus causing a lot of energy consumption in Package Water Cooled of air conditioner, As shown in figure. 2.

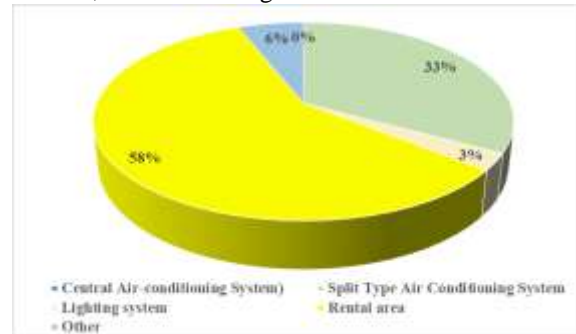


Figure 2. Amount and proportion of energy classified by system used in Fortune Town Shopping Center IT Mall section

3.2 Data base on the evaluation of Significant Energy use characteristics

The results of Significant Energy Use Assessment, Fortune Town Shopping Center, Plaza Section was to study found that any type of energy use with a score of 11 points or more would be considered as a Significant Energy Use and the SEU was summarized by machines that were significant across the entire plaza. [19] And the IT Mall section. As shown in Table 5. And Table 6.

Inclusion, Data based on the results of the Significant Energy Use assessment, if any of the characteristics of any energy has a score of 11 points or higher, it is considered to be a Significant Energy Use and Summarize the list of SEU by machines that are significant in the entire plaza. And the IT Mall section.

3.3 Details of methods used to improve energy capacity. Calculation of energy-saving and economic data analysis.

3.3.1 Installing two sets of motor speed control unit (VSD) and cool water pump. In the plaza area, it is a central air-conditioning system. There are three sets of 450-ton cool water pumps and two sets of 285-ton. Two sets of 450-ton and one of 285-ton are turned on. The cool water flow rate is about 2,844 GPM/machine. In the building, they use primary/secondary pumps, three sets of the 11-Kilowatt primary pump but operate only two of them. They operate 14 hours a day. Four sets of the 45-Kilowatt secondary pump are also available. The cool water flow rate is about 1,080 GPM/machine. Operate three machines at a time, 14 hours daily, 365 days yearly. They operate continuously during working hours.

Before the renovation, a 2-way valve at AHU was used for cooling control to adjust the coolant level. As the temperature

during the day was varied, it was found that the workload of the coolant system was sometimes less than 60%. (before and after working hours) As a result, the installation of the motor speed control units with the water pump was proceeded to adjust the level of water flow which helps balance actual workload and reduce consumption of electric power of the central air-conditioning system.

The installation of the motor speed control units with two sets of secondary water pump size 45 Kilowatt was done to adjust the water flow as figure 3. And Table. 7

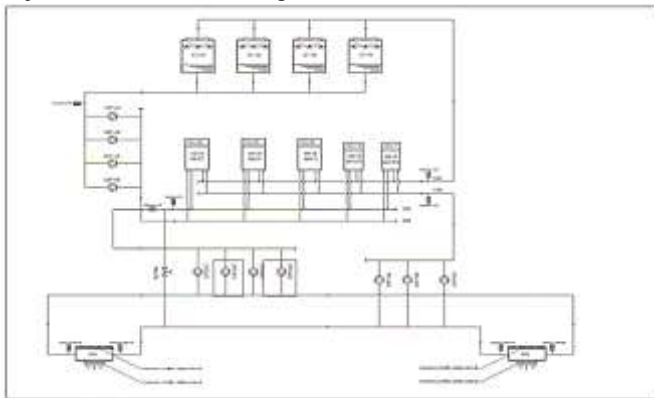


Figure 3. Installation Diagram of Fortune Town Plaza Section

Table 7. Chilled water transmitter power

Machine list	Water Flow Rate (GPM)	Nameplate (kW)	Measurement value (kW)
Primary Pump			
Cool water pump CHP 01-01	1080	11	11.80
Cool water pump CHP 01-03	1080	11	11.87
Cool water pump CHP 01-04	1080	11	13.12
Secondary Pump			
Cool water pump CHP 02-01	1080	45	46.30
Cool water pump CHP 02-02	1080	45	ชำรุด
Cool water pump CHP 02-03	1080	45	47.63
Cool water pump CHP 02-04	1080	45	48.33

Annotation :Consider installing a variable speed motor with a chilled water transmitter CHP 02-01 and a chilled water pump CHP 02-03.

3.3.2 Installing big cleaning circulate of package water-cooled of air-conditioners 75TR and 96TR to enhance efficiency and reduce energy consumption in air pressure system. As the old air-conditioners have been used for a long time, their cooling rate is low. Moreover, when the air-conditioners operate both during load and unload, it was found that the machine overload. It might be caused by

clogging in shell and tube heat exchanger and dirty coils. The problems cause energy waste. For this reason, to save energy and increase their efficiency, big cleaning of air-conditioners is needed. The procedures are following:

Before the renovation, 16 air-conditioners size 46TR, 75TR, and 96TR are normally operating. Most of them have been used for more than 25 years. Some of them are low efficient. To increase their efficiency, reduce energy consumption, and down costs, big cleaning of the air-conditioners was processed. This also helps prevent air-conditioners from broken-down during service hours. As shown in table 8, table 9 and figure 4.

Table 8 Data Base of air conditioner (Package Water Cooled)

Brand / Model	Year	Type	Cooling capacity	
			kW	Btu/Hr
AC 33 Carrier 50 BL 080 900	1992	Package Water Cooled	64.79	901,818
AC 34 Carrier 50 BL 080 900	1992		63.86	901,818
AC 35 Carrier 50 BL 080 900	1992		63.50	901,818
AC 38Carrier 50 BL 080 900	1992		62.83	901,818
AC 46 Carrier 50 BL 100 900	1992		66.03	1,153,560

Table 9 Performance of Package Water Cooled of air conditioner before improvement - after improvement

Brand / Model	Before			After		
	Size (TR)	Operating power (kW)	Cost of use kW/TR	Size (TR)	Operating power (kW)	Cost of use kW/TR
AC 33 Carrier 50 BL 080 900	75	64.79	2.95	75	50.96	1.81
AC 34 Carrier 50 BL 080 900		63.86	3.05		44.65	1.51
AC 35 Carrier 50 BL 080 900		63.50	2.65		61.67	2.02
AC 38Carrier 50 BL 080 900		62.83	1.51		52.69	1.14
AC 46 Carrier 50 BL 100 900	96	66.03	2.88	96	59.01	0.77

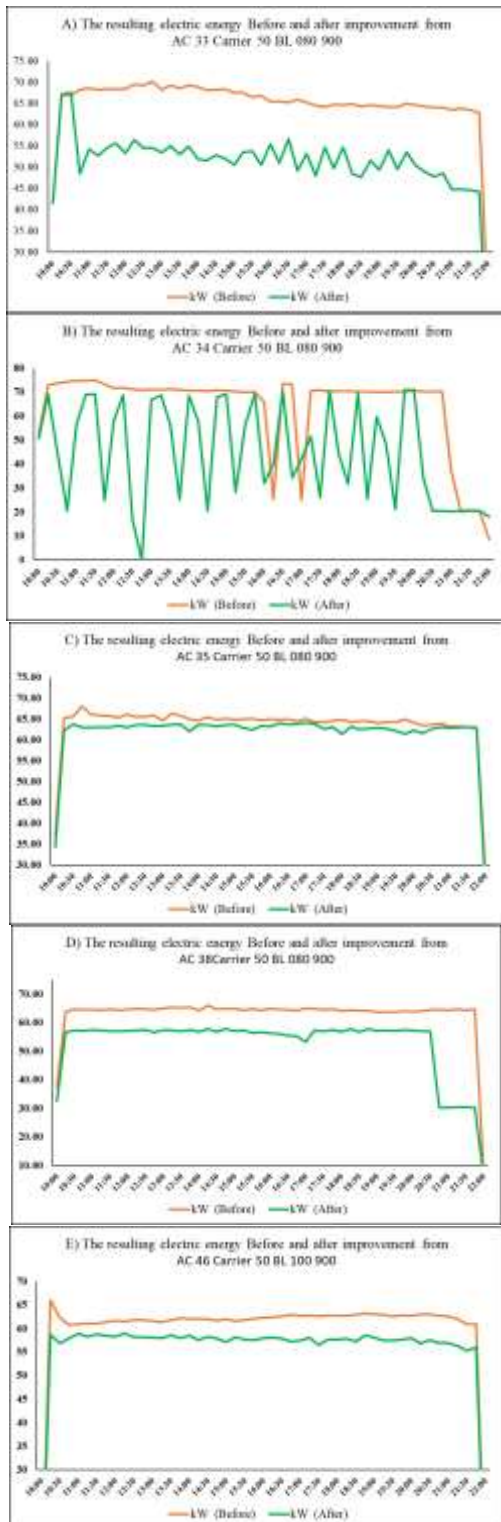


Figure. 4 Power consumption from air conditioner before - after the operation is completed.

The results of economic data analysis and economic calculation for the investment of installation of big cleaning

circulate package water-cooled including operation fee was 35,410 Baht. It will last long five years. There was no interest rate. This will help reduce electricity consumption by 182,337.35 kWh/year or save cost 738,466.26 Baht/year. According to NPV, this saves energy 7,598,717.62 Baht, IRR 10,778.71, and will gain back within 2.82 years.

IV. CONCLUSIONS

4.1 After studying Energy Conservation Act 2007 (Issue No. 2) and setting proper standards for shopping centers, it was found that the standards help reduce energy consumption in both the plaza area and IT mall 361,851.65 Units or 1.51%.
 4.2 According to energy saving analysis, it represented the conclusions of energy-saving and economic values in each standard as follows:

4.3 Before installing two sets of motor speed control units (VSD) and cool water pumps in the plaza area, the energy consumption was 479,982.30 kWh/year. After installing, the energy consumption decreased to 300,468.00 kWh/year. It saved energy 179,514.30 kWh/year.

4.4 The results of economic data analysis and economic calculation for the investment of two sets of motor speed adjusting installation at secondary pump size 45 kW including installation fee was 300,000 Baht. They will last long five years. There was no interest rate. This investment will help reduce electricity consumption by 179,514.30 kWh/year or save 727,032.91 Baht/year. According to NPV, this saves 3,335,164.55 Baht, IRR 1,122%, and will gain back within 0.41 year.

4.5 To improve the efficiency of air-conditioner size 75TR and 96TR and reduce energy consumption in air pressure system by installing big cleaning circulate package water-cooled.

4.6 The results of economic data analysis and economic calculation for the investment of big cleaning circulate package water-cooled including operation fee was 35,410 Baht. It will last long five years. There was no interest rate. This helps reduce electricity consumption by 182,337.35 kWh/year or save 738,466.26 Baht. According to NPV, this saves 7,598,717.62 Baht, IRR 10,778.71%, and will gain back within 2.82 years.

V. SUGGESTIONS

5.1 Set scope and limitation to cover energy consumption system and energy management system which correlate with the business.

5.2 Energy management should not overemphasize technical. Effective and continual operation is needed.

5.3 Energy management system according to Energy Conservation Act 2007 (Issue No. 2) should be applied as the main tool to enhance continuing and sustainable efficiency.

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Table 5. Results of Significant Energy Use Assessment, Fortune Town Shopping Center, Plaza Section

** There are 3 types of priority level: 1) High = H 2) Medium = M and 3) Low = L

Machine Equipment	Type of Energy	(1) Power consumption				(2) Machine Hours				(3) Potential for Improvement				Score (0) x (1) x (2)	Priority Scale	Level of Importance
		Very low	Low	Medium	High	Very low	Low	Medium	High	Very low	Low	Medium	High			
		(15000)	(25000)	(35000)	(45000)	(15000)	(25000)	(35000)	(45000)	(15000)	(25000)	(35000)	(45000)			
Chiller No.3	Electrical													20	3	M
Chiller No.4	Electrical													18	3	M
Cooling Tower 1	Electrical													12	4	M
Cooling Tower 2	Electrical													13	4	M
Cooling Tower 3	Electrical													12	4	M
Cooling Tower 4	Electrical													12	4	M
COP-01	Electrical													18	3	M
COP-02	Electrical													18	3	M
COP-03	Electrical													18	3	M
COP-04	Electrical													18	3	M
PCSD 01-01	Electrical													8	2	L
PCSD 01-03	Electrical													8	2	L
PCSD 01-04	Electrical													8	2	L
SCSD 02-01	Electrical													24	2	M
SCSD 02-02	Electrical													16	3	M
SCSD 02-03	Electrical													24	2	M
SCSD 02-04	Electrical													16	3	M
Fanroom 10 Wat	Electrical													48	1	H
Fanroom 11 Wat	Electrical													24	2	M

Annotation : * Significant Energy Use assessment scores are based on Table 2-1.

** There are 3 types of priority level: 1) High = H 2) Medium = M and 3) Low = L

Table 6. Results of Significant Energy Use Assessment, Fortune Town Shopping Center IT Mall section

Machine Equipment	Type of Energy	(1) Power consumption				(2) Machine Hours				(3) Potential for Improvement				Score (1) x (2) x (3)	Priority Scale	Level of Importance
		Very low	Low	Medium	High	Very low	Low	Medium	High	Very low	Low	Medium	High			
		(15000)	(25000)	(35000)	(45000)	(15000)	(25000)	(35000)	(45000)	(15000)	(25000)	(35000)	(45000)			
Cooling Tower No. 1	Electrical													15	5	M
Cooling Tower No. 2	Electrical													6	6	L
Cooling Tower No. 3	Electrical													6	6	L
Cooling Tower No. 4	Electrical													6	6	L
Cooling Tower No. 5	Electrical													6	6	L
COP-01	Electrical													36	3	H
COP-02	Electrical													12	5	L
COP-03	Electrical													12	5	L
COP-04	Electrical													27	4	M
COP-05	Electrical													18	5	L
COP-06	Electrical													27	4	M
COP-07	Electrical													36	3	H
Package Water Cool AC05	Electrical													36	3	H
Package Water Cool AC06	Electrical													48	2	H
Package Water Cool AC07	Electrical													36	3	H
Package Water Cool AC08	Electrical													9	6	L
Package Water Cool AC12	Electrical													9	6	L
Package Water Cool AC31	Electrical													48	2	H
Package Water Cool AC34	Electrical													48	2	H
Package Water Cool AC35	Electrical													48	2	H
Package Water Cool AC36	Electrical													27	4	M
Package Water Cool AC37	Electrical													18	6	L
Package Water Cool AC38	Electrical													48	2	H
Package Water Cool AC41	Electrical													45	3	H
Package Water Cool AC44	Electrical													9	6	L
Package Water Cool AC45	Electrical													27	4	M
Package Water Cool AC46	Electrical													48	2	H
Package Water Cool	Electrical													45	3	H

Annotation : * Significant Energy Use assessment scores are based on Table 2-1.

Factors Affecting Media Literacy during COVID-19 Pandemic of High Secondary School Students in Pittsburgh City, Pennsylvania, USA.

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Abstract— Currently, social media use is very popular. Hence, social media literacy is important. Self-directed is learning process that improves media literacy. The aim of this research was to examine factors affecting high secondary school students' social media literacy during COVID-19 pandemic in Pittsburgh City, Pennsylvania, USA. The cross-sectional survey by quantitative research was conducted. The sample size was calculated and proportional stratified randomly selected 160 students. The instrument to identify affecting factors was questionnaire which tested for validity and reliability by IOC and Cronbach's alpha, the results were more than 0.5 and 0.73 respectively. The descriptive statistics and multiple linear regression by forward stepwise were applied. The findings are as follow: the social media literacy and students' self-directed are high. The factors affecting social media literacy are self-directed learning, learning media literacy from school and parents' suggestions. This model can predict social media literacy of high secondary school students 43.4%. The recommends were the school should promote self-directed learning and have course of media literacy for students. The family should control and suggest their children to use social media

Keywords— COVID-19/ MEDIA LITERACY/ SOCIAL MEDIA/ STUDENT

I. INTRODUCTION

Presently, people live in overwhelm information with media, so media literacy is an obligation (Jenkins et al., 2009). Because of rapid transformation in media environment especially social medias, literacy must include the capability for interpreting media messages from all types of vehicles and texts (Adams & Hamm, 2010), or the fluency to read and write media language (Thoman & Jolls, 2004). Lacking media literacy leads to weaken in media conditioning and harmful media effects, which turn positions from the low media literate individual to serious disadvantages (Potter, 2013). Social media is comfortable to communicate and share, so it is popular now. People are used to make social networks or social connections with the others who give same individual or occupational interests, events relations. The utilization of social media has occupied the liveliness of children and taking chances for communication, participation and self-appearance (Boyd, 2014).

The impact of social network on youth is remarkable. (Nalwa, & Anand, 2003). While, issues of social media are examples of persecuting, bullying, harassing and even

suicide (Mascheroni, Ponte, Garmendia, Garitaonandia, & Murru, 2010), guiding parents, adaptations and production to try manage web based interconnections so as to decrease the chance of danger. Platforms of social media allow consumers to have discussions, share data and create content. Social media has various forms such as blogs, picture-sharing sites, instant messaging, video-sharing sites. Many people consume social media to share information and communications globally (Kuppuswamy & Narayan, 2010). It allows individuals to connect with others, get knowledge of new information, make interests, be fun and connecting with others. Social media is a creative idea with a so bright chance with extra view for progression. Advertisement or communication via social media is efficient way. Consumers can find or get information globally (Kietzmann, 2012). Hence, social media literacy is essential due to popular consume. Schools must possess a major duty of preparing learners in suitable media utilization. Learning and teaching can help students to have media literacy. Education should close look to an energetic and innovative use of media as a studying tools, both in and out of the school, to a crucial feedback the influence of media for social too. Media literacy can be combined in teaching and learning in many methods (Neag,

2015; Friesem et al., 2014). The self-directed learning is one of the learning strategies and activities to enhance social media literacy.

The relationships of self-directed learning and information and computer technology is broadly utilized in educational context (Prestridge, 2012; Mareco, 2017). It implied that the utilize of technology can increase the motivation of students to learn, and can support lifelong learning beyond the usual classes (Saxena, 2013). The use of educational technology is main component to get studying efficiently. Pupils were educated in class, and then given work through on-line learning and distance workshop. Students are given liberal to study by their own intelligence (Asfar & Zainuddin, 2015). This assists them to do their own knowledge and undergo. Many students make cooperative learning by various technological instruments to promote self-directed learning ability. The students study from individual studying networks such as Facebook, they may have cooperation of other students in the same channels. The adults are able to autonomous study when they require (Saxena, 2013). Dawson et al. (2012) studied the relationship between using technology and self-directed learning. The finding identified that fostering of technology was able to enhance and adopt self-directed learning competences, motivations, self-managements and self-monitoring. Rashid & Asghar (2016) studied technology utilized and self-directed learning of higher education students. The finding demonstrated that utilization of technology has a direct positive relationship with students' self-directed learning.

In 2019-2020, rapid pandemic of COVID-19 led people to receive and use information about health and transform their health behaviour (Corman, et al., 2020). The aim of communication in health was to teach people about the severity and prevention or spreading the infection. Most valuable information is made to comprehend easily that proposes practical solving such as washing hands, keeping physical distance (Prem, et al., 2020). There is still false information. People should consider to acquire, comprehend, and utilize this information in a moral manner to be health literate. However, the COVID-19 info-pandemic has stressed that poor media literacy of population is an underestimated problem globally (Zarocostas, 2020). For COVID-19 pandemic, firstly, media literacy is important for protection. Secondly, system preparedness and individual preparedness are key for solving problems. It is difficult but possible to enhance health literacy (Prem, et al., 2020).

Media literacy help people to catch the reasons and reflect on outcomes of their various possible actions. For social responsibility, thought over people interests and comprehension how person chooses—views such as moral

aspects and behavioral insights should be determined by health literacy (Van den Hoven, 2012). Unfortunately, fake information about COVID-19 has grown on social media. This fake news comes in many forms such as grass can kill the virus. The worst of fake news may cause people to either overreact such as hoarding goods, more dangerously under-react such as deliberately engaging in risky behavior and inadvertently spreading the virus. As a result, it is necessary to comprehend why people both trust and distribute fake news. These problems will be solved by media literacy (Pennycook, 2020).

The USA is the most infected COVID-19 patients with more than 8 million persons. COVID-19 patients in Pennsylvania are around 180,000, COVID-19 patients in Pittsburgh city are around 70,000. The information of COVID-19 via social media is very fast that some are true, some are fake. Hence, media literacy is important especially in students who have few experiences. Pittsburgh city is urban area where use of social media is comfortable. Most of students use social media to find information of COVID-19. Thus the research of social media literacy and related factors during COVID-19 pandemic in Pittsburgh city, Pennsylvania, USA is very interesting.

II. RESEARCH OBJECTIVES

To examine the social media literacy levels and identify affecting factors during COVID-19 pandemic of high secondary school students in Pittsburgh city, Pennsylvania, USA.

III. RESEARCH CONTRIBUTION

Be able to more fully understand the main factors that affect students' media literacy these factors will become the main hand in management practice;

The differences students' media literacy skill under different differences have laid a theoretical and data analysis support foundation for different types of schools' different teaching and learning priorities in media literacy;

Give some operability suggestions for the students of secondary schools in Pittsburgh city, which can play a very good role of reference.

IV. METHODS

The cross-sectional survey study was conducted. The population was 3,984 high secondary school students in Allegheny county, Pittsburgh city, USA. The sample size was calculated, the samples were 160 students. In order to make every student in each school had the same opportunity to be selected as sample, the multistage random sampling method were employed to draw the students from

each school by proportional stratified random sampling. The media literacy in this study refers to COVID-19 social media literacy. The questionnaire was applied from Driesen et al. (2014) that consisted of 3 components that were using, understanding, contributing social media medially. The self-directed learning questionnaire was applied from Williamson (2007) that consisted of awareness, learning strategy, learning activity, evaluation and interpersonal skill. The validity of self-administrator questionnaire was checked each item by 3 experts with IOC. more than 0.5. The reliability was analyzed by using Cronbach's alpha coefficient. The 30 students in another county were tried out to find and improve the research instruments. The Cronbach's alpha coefficient of social media literacy was 0.76, while self-directed learning was 0.73.

V. RESULTS

The high secondary school students who participated in this study were 81 men (50.6%) and 79 women (49.6%). The average of ages was 16 years and 11 months. The education levels of participants in grade 10, 11 and 12 were 56, 53, and 51 students or 33.1%, 35.0% and 31.9 % respectively. The scores of COVID-19 social media literacy were divided into 5 levels (highest, high, moderate, low and lowest). The results showed that the overall level of COVID-19 social media literacy of high secondary school students in Pittsburgh, USA was in high level. In detail, the using social media, understanding social media, contributing social media medially all were the high level as shown in Table 1.

Table 1. COVID-19 social media literacy level of high secondary school students

COVID-19 social media literacy	Mean	SD.
Using social media	3.70	0.90
Understanding social media	3.68	0.84
Contributing social media medially	3.49	0.88
Overall COVID-19 social media literacy	3.63	0.83

The relationship of self-directed learning and COVID-19 social media of high secondary school students during COVID-19 pandemic by simple correlation with significant coefficient of was shown in table 2.

The significant relationship between school support, parent support and COVID-19 social media literacy of high secondary school students during COVID-19 pandemic by Fischer's exact test was shown in table 3

Table 2. the correlations between COVID-19 social media literacy and self-directed learning

Factors	COVID-19 social media literacy	Self-directed learning
COVID-19 social media literacy	1	0.629*
Self-directed learning	0.629*	1

Table 3 the relationship between COVID-19 social media literacy and school support, parent support

Factors	COVID-19 social media Number (percentage)			Total	Fisher's exact test P-value
	Low Intermediate	High & Highest	&		
School support					
Have	34 (23.1)	113 (76.9)	&	147 (100.0)	0.002
No	7 (53.8)	6 (42.6)	&	13 (100.0)	
Parent support					
Have	19 (14.2)	115 (85.8)	&	134 (100.0)	<0.001
No	22 (85.6)	4 (15.4)	&	26 (100.0)	

The multiple regression by stepwise method was conducted. The regression model of factors affecting COVID-19 social media of students are showed in table 4 and the following information:

Three independent variables are statistically significant:

- 1) self-directed learning ($p < 0.001$),
- 2) parent support ($p = 0.01$),
- 3) school support ($p = 0.049$)

From table, the predictive model is as following:

COVID-19 Social media literacy = Constant + 0.251 (learn media literacy from school) + 0.119 (parent suggestion) + 0.452 (self-directed learning)

The adjust R^2 is 0.434 that refers to this model can predict COVID-19 social media 43.4%.

Table 4. Multiple regression of factors affecting COVID-19 social media literacy of high secondary school students

Model	Std. Coeff. Beta	R	Adjust R ²	t	Sig.
(Constant)				5.44	<0.001
Self-directed learning	0.45	0.63	0.39	5.76	<0.001
Parent support	0.25	0.66	0.42	3.23	0.001
School support	0.12	0.67	0.43	1.98	0.049

Three independent variables are statistically significant:

- 1) self-directed learning ($p < 0.001$),
- 2) parent support ($p = 0.01$),
- 3) school support ($p = 0.049$)

From table, the predictive model is as following:

COVID-19 Social media literacy = Constant + 0.251 (learn media literacy from school) + 0.119 (parent suggestion) + 0.452 (self-directed learning)

The adjust R^2 is 0.434 that refers to this model can predict COVID-19 social media 43.4%.

VI. DISCUSSION AND CONCLUSION

According to the study, social media literacy levels during COVID-19 are in high level. In detail, using social media

during COVID-19 pandemic refers to students consider the usages to find fast and reliably information during COVID-19 pandemic which is in crisis. Understanding socialmedia refers to students have critical thinking and make decision to believe information, which leads to understand and good self-care practice to prevent and control COVID-19 infection. Contributing social media medially refers to distribute useful and correct information to other people. The dimension of using social media is at high level with mean of 3.70. It reveals that the social media utilizations of high secondary school students are good. This result offers that the recent technologies (social media), may be transformed the communication figure over the USA. From the findings, the level of social media literacy in dimension of understanding social media is at a high level with mean of 3.68. It reveals that high secondary school students can understand information via social media well during COVID-19 pandemic, while research of Hutto & Bell (2014) found that the elder in the USA. understand FaceBook at moderate level. Contributing social media medially is found that the dimension of contributing social media medially is at a high level with an average mean of 3.49. It reveals that high secondary school students can contribute social media medially well during COVID-19 pandemic, while the study of Hutto & Bell (2014) found that the elder in the USA. contribute facebook medially fairly. The directed communications (as opposed to broadcast communications and passive consumption of content) is significantly correlated with feelings of social satisfaction among this distinct population.

There are significant relationships between COVID-19 social media literacy and self-directed learning, school and family support. All the possible variables were used to run stepwise multiple regression. The factors revealed to be associated to social media literacy during COVID-19 pandemic are self-directed learning, learning media literacy from school and parent suggestion. The model is COVID-19 Social media literacy

= Constant + 0.251 (learn media literacy from school) + 0.119 (parent suggestion) + 0.452 (self-directed learning)

This model can predict COVID-19 social media 43.4%.

Recommendations

Recommendations for the schools are as follow:

(1) The schools should promote social media for high secondary school students. The promotion could be about use of social media, understand social media and contributing social media medially. The self-directed learning should be promoted in awareness, learning strategy, learning activity, evaluation and interpersonal skill.

(2) The schools should have program, teaching and learning, campaign and organizing activity about social media literacy and cooperate with parents of children to suggest them about social media literacy.

Recommendations for high secondary school students are as follow:

(1) Some of high secondary school students should try to learn by self-directed learning. They are supposed to become more social media literacy if they would like to improve social media literacy at school and home. There are some effective ways for them such as aware, set learning strategy, choose learning activity that suitable for them, assess and train interpersonal skill.

(2) The parents of high secondary students should suggest more information in order to let them use social media in proper way, develop understanding information and the correct distribution of information via social media.

Recommendations for further study are as follow:

(1) The researchers who would like to do the research about social media literacy of students could wide their fields. For example, they could focus on the factors affecting social media literacy of students in other level of schools such as primary school, low secondary school, college and university in order to investigate whether there will have some difference between high secondary and other level of schools or not.

(2) They could add more details about social media literacy of people not in school or education institute in the further study in order to do comparison on students and social media literacy of people. That could demonstrate factors affecting social media literacy of students comprehensively.

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The Development of Learning Activities using Activity-Based Learning to Enhance Creative Learning Management Ability of Pre-Service Teachers

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Abstract— This study was aimed 1) to develop instructions using Activity-Based Learning (ABL), 2) to study the effectiveness of the instructions using ABL, namely: 2.1) Pre- Service Teachers' learning outcomes; 2.2) the Pre- Service Teachers' creative instruction ability; 2.3) the ability of instruction; and 2.4) the Pre- Service Teachers' feedback on ABL instructions. The samples consisted of 28 undergraduate students in Art Education Program, Faculty of Education, Silpakorn University, studying in Semester 1, Academic year 2020, selected by purposive sampling. The instruments used included: 1) ABL instructions; 2) a 30- item comprehensive test; 3) assessment on creative instruction design ability; 4) assessment on creative instruction ability; and 5) questionnaire of the students' feedback towards the instructions. The statistics was conducted with mean and standard deviation.

The findings revealed that: 1) The ABL instructions for promoting creative instruction design ability Pre-Service Teachers of Faculty of Education, Silpakorn University, consisted of 6 steps, called DEECEE, namely: Step 1 Draw attention (D); Step 2 Experience learning (E); Step 3 Engage in activities (E); Step 4 Construct new knowledge (C); Step 5 Exchange knowledge (E); and Step 6 Evaluate outcomes (E). 2) After providing the instructions, 13 students gained the score at a good level (21-25 points), with 46.43 percent. 3) The creative instruction design ability, in overall, was at a very good level, with ($\bar{x} = 93.17$). 4) The instruction ability was at a very good level (with 89.84 /100 points) and 5) The students' feedback towards ABL instructions was at a high level ($\bar{x} = 4.27$, S.D. = 0.68).

Keywords— Creative Learning Management, Activity-Based Learning (ABL), Pre-Service Teachers

I. INTRODUCTION

Teachers' competencies in the 21st Century are to be able to (1) use a wide variety of assessment strategies, (2) use communication techniques effectively, (3) continuously participate in professional activities for personal and school development, (4) use appropriate techniques and strategies to encourage students thinking, (5) implement various teaching strategies, (6) have ethics of teaching profession, (7) arrange environment to promote the development of learning, (8) have comprehension of the subject matter, (9) create atmosphere of learning, (10) plan instructions and follow the plans with diversity, (11) work with other fellow teachers, parents and educators and (12) use appropriate technology in learning management [1].

Faculty of Education, Silpakorn University, produces students to be professional teachers. They need to be trained for clear understanding based on teacher's statement, for instance contents to use in the instructions, appropriate teaching methods to various subjects, behavior as appropriate as being a teacher, mannerism based on the code of teaching profession ethics, including knowledge of teaching profession standards in various matters, especially curriculum standards as it is the core of teaching at all levels, especially the basic education. Therefore, the pre-service teachers are required knowledge and understanding, and enable to develop the curriculum as well. The pre-service teacher development focuses on all aspects which mean they should be developed to become knowledgeable and skillful in all areas such as being knowledgeable and understandable of new teaching techniques, be able to use various tools with effectiveness including to keep up with what happened or changes in the

current society, etc. [2] especially learning activities, namely: instruction design, learning material design, selection of learning resources, assignment and task design, as well as learning measurement and evaluation, Design of work pieces and workloads, including etc.

462 202 Course – Learning Management and Classroom Management of Bachelor of Education Program, Faculty of Education, Silpakorn University, is a course that allows the students to learn about learning styles and instruction development, learning experience organization and design and enable to create the lesson plans from course syllabus throughout the semester, techniques and learning management science, use and production of media and learning innovation development, student-centered instructions, classroom management, and assessment of learning outcomes. Moreover, The pre-service teachers are able to provide activities that promote the students' learning and classify the students' learning level from the assessment by allowing the pre-service teachers to practice both inside and outside the classroom with a variety of instructions. Therefore, the instruction in this course emphasizes the pre-service teachers acquire knowledge from theory to practice in order to prepare themselves for internship in the fifth year. ABL is the instructions developed from a concept of pedagogy disseminated in the late 20th century, called "Active Learning. This refers to the teaching format that focuses on encouraging learners' participation and their roles. "Activity-based learning" means using activities as a base for training or developing the learners in order to achieve a defined objective or goal [3]. An important characteristic of ABL instructions is to encourage the students to be active and enthusiastic towards thinking. It also causes learning from the learner themselves, rather than listening to the teacher and memorization. Furthermore, it develops the student's skills for self-learning that causes continuous learning, including obtaining results in knowledge transfer which is similar to other forms of learning. However, it works better in developing skills of thinking and writing. The activities are in forms of exploratory, constructive, and expressional activities, for example class discussion, think-pair-share, role play, situational learning, or game.

However, in accordance with the importance of ABL instructions, if it is used in the instructions, it can develop the pre-service teachers to be knowledgeable and competent on designing and providing the instructions with creativity. The researcher, as a teacher of Curriculum and Supervision Program, responsible for 462 202 Course - Learning Management and Classroom Management, Bachelor of Education Program, Faculty of Education, Silpakorn University, is therefore interested in developing the

pre-service teachers to gain knowledge and ability on the ABL instructions.

II. RESEARCH OBJECTIVES

1. To develop an instruction using ABL to promote creative instruction design abilities of pre-service teachers, Faculty of Education, Silpakorn University.
2. To study the effectiveness of the instructions using ABL as following aspects:
 - 2.1 The learning outcomes of undergraduate pre-service teachers enrolling in Learning Management and Classroom Management Course.
 - 2.2 The creative instruction design ability of undergraduate pre-service teachers enrolling in Learning Management and Classroom Management Course.
 - 2.3 The instruction ability of undergraduate pre-service teachers enrolling in Learning Management and Classroom Management Course.
 - 2.4 The students' feedback on the instructions using ABL.

III. LITERATURE REVIEW

Activity Based Learning (ABL) is the instructions developed from a concept of pedagogy disseminated in the late 20th century, called "Active Learning. This refers to the teaching format that focuses on encouraging learners' participation and their roles. "Activity-based learning" means using activities as a base for training or developing the learners in order to achieve a defined objective or goal [3]. An important characteristic of ABL instructions is to encourage the students to be active and enthusiastic towards thinking. It also causes learning from the learner themselves, rather than listening to the teacher and memorization. Furthermore, it develops the student's skills for self-learning that causes continuous learning, including obtaining results in knowledge transfer which is similar to other forms of learning. However, it works better in developing skills of thinking and writing. The activities are in forms of exploratory, constructive, and expressional activities, for example class discussion, think-pair-share, role play, situational learning, or game. According to the study of related documents and research papers, the researcher has synthesized ABL instructions into 6 steps[5][6][7] [8][9][10], which are: 1) Draw Attention; 2) Experience Learning; 3) Engage in Activities; 4) Construct New Knowledge ; 5) Exchange Knowledge; and 6) Evaluate Outcomes.

IV. RESEARCH METHODS

This study was conducted with Pre – Experimental Research using One – Group Pretest - Posttest Design [4]

Experiment	Posttest
X	T ₂

Research Instruments

1. The instructions using ABL with 4 units as following: Techniques for Learning Management, Media Production and Learning Innovation Development, Measurement and Evaluation, and Classroom Management.
2. Comprehensive test on 4 units of the instructions with 30 items.
3. 5-point scale assessment on the creative instruction design with 20 items.
4. 5-point scale assessment on the instructions with 5 aspects.
5. 5-point scale questionnaire of students' feedback on the instructions using ABL with 4 aspects.

Creation and Quality of Instruments

1) ABL Instructions

- 1.1) Study and analyze documents and research papers regarding ABL instructions for undergraduate pre-service teachers (both Thai and international studies)
- 1.2) Synthesize and design ABL instructions with 6 procedures as follows: Step 1 Draw attention, Step 2 Experience learning, Step 3 Engage in activities, Step 4 Construct new knowledge, Step 5 Exchange knowledge, and Step 6 Evaluate outcomes.
- 1.3) Propose ABL instructions to 3 experts.
- 1.4) Define 4 learning units to use in ABL instructions and practicing in schools.

2) Comprehensive test on instructions

- 2.1) Study and analyze documents related to Techniques for Learning Management, Media Production and Learning Innovation Development, Measurement and Evaluation, and Classroom Management.
- 2.2) Create the comprehensive test for 4 units which are Techniques for Learning Management, Media Production and Learning Innovation Development, Measurement and Evaluation, and Classroom Management in 462 202 Course - Learning Management and Classroom Management. The test is multiple choice examination with 4 choices and there are 30 items.
- 2.3) Propose the comprehensive test to 3 experts in order to examine the Index of Item Objective Congruence (IOC) of the instruments if the IOC score is ≥ 0.50 or higher.
- 2.4) Try out the comprehensive test with 27 third-year students of Physics Program, Semester 1 of the academic year 2020, in order to verify quality of the instrument using difficulty criterion between 0.20-0.80. In addition, The discrimination of the test is examined how well it can distinguish the students' high and low proficiency levels as of the value of 0.20 or higher. Reliability is examined by

Kuder-Richardson's formula - KR-20, with the value from 0.75 onwards.

3) Assessment of creative instruction design

- 3.1) Study and analyze documents and research papers related to instructions, instruction design and lesson plan creating
- 3.2) Create 5-point scale assessment on creative instruction design ability with 21 items.
- 3.3) Propose the assessment of creative instruction design to 3 experts to examine content validity, language used and measurement and evaluation in order to find IOC. IOC analysis must be 0.50 or higher.

4) Assessment of creative instruction ability

- 4.1) Study and analyze documents and research papers related to instructions and competency of instructions.
- 4.2) Create 5-point scale assessment on creative instruction ability for 5 aspects with 22 items.
- 4.3) Propose the assessment of creative instruction ability to 3 experts to examine content validity, language used and measurement and evaluation in order to find IOC. IOC analysis must be 0.50 or higher.

5) Questionnaire of students' feedback on ABL instructions

- 5.1) Study the format and method of creating the questionnaire of the students' feedback on ABL instructions.
- 5.2) Construct the questionnaire of feedback on ABL instructions by dividing into 2 sections:
Section 1 The questionnaire of students' feedback on ABL instructions in 462 202 Course – Learning Management and Classroom Management, asking in these following aspects: 1) ABL instructions; 2) Materials; 3) measurement and evaluation; and 4) benefits of the courses. The questionnaire was conducted with 5-rating scale and there were 20 items.
Section 2 The questionnaire was an open-ended form regarding the students' feedback on the instructions and suggestions for improvement with 1 items by having the students write their opinions towards ABL instructions.
- 5.3) Propose the questionnaire to 3 experts to examine content validity and find IOC of the instrument from the experts' feedback by choosing the questions with IOC value of ≥ 0.50 , which means the questionnaire is valid.

Experiment

The experiment was divided into 3 stages as following:

1. Pre-research Stage: the researcher provided the instructions using ABL with 6 steps of DEECE and used designed research instruments as following:
 - 1.1 The experiment with 4 units took 8 weeks, 4 hours per day, 32 hours in total.
 - 1.2 The content used for the experiment was 462 202 Course - Learning Management and Classroom Management, with 4

units which are Techniques for Learning Management, Media Production and Learning Innovation Development, Measurement and Evaluation, and Classroom Management.

1.3 The students were divided into groups and practice designing the instructions.

1.4 The researcher evaluated the instruction design of each group.

1.5 The researcher provided the instructions.2. Implementation Stage

2.1 The researcher assigned the students to design the instructions that would be used in the schools with Grade 7-9 in learner development activities for 1.30 hours.

2.2 The researcher made contact with Tessaban 2 Watnaseha (Samakphonphadung) School, which is one of the schools that participates in teaching development program and offers the students to implement the designed instructions on October 19 and 26, 2020.

2.3 The researcher assigned advisory teachers of Grade 7-9 of Tessaban 2 Watnaseha (Samakphonphadung) School to evaluate the creative instruction design ability from lesson plans and evaluate the pre-service teachers' ability on creative instructions.

3. Post-research Stage: After completing the experiment, the researcher conducted posttest using the 4-unit comprehensive test on the instructions, with 30 items. In addition, the students completed the questionnaire regarding feedback on ABL instructions. The results of feedback were then analyzed with statistics.

V. RESEARCH RESULTS

1. ABL instructions: to promote the pre-service teachers' creative instruction design ability, Faculty of Education, Silpakorn University, employed 6-step approach called DEECEEE, which are: Step 1 Draw attention; Step 2 Experience learning; Step 3 Engage in activities; Step 4 Construct new knowledge; Step 5 Exchange knowledge; and Step 6 Evaluate outcomes. The details are as following:

Step 1: Draw attention, stimulate and draw interest of the students using questions, illustrations, or clips on such topics to enhance the prior knowledge and connect to new experiences.

Step 2: Experience learning, provide content about techniques of learning management science, learning materials, measurement and evaluation, and classroom management for the students.

Step 3: Engage in activities, provide the instructions through games, competition in the form of single player, pair and team, with rules, conditions, and points.

Step 4: Construct new knowledge, practice designing tasks and assignments as specified on the topics studied to be interesting and creative.

Step 5: Exchange knowledge, present the tasks and assignments according to the content of each learning strand.

Step 6: Evaluate outcomes, discuss, evaluate, share ideas criticize the tasks and assignments on activities, approaches, materials, and methods of self and peer measurement and evaluation, along with improve the works.

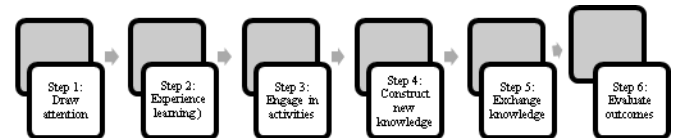


Figure 1 The 6-step ABL instructions called “DEECEEE”

2. The results of knowledge and understanding of the pre-service teachers using ABL instructions with the 6-step DEECEEE with 4 units: after the instructions provided, 13 students gained score in a good level (21-25 points), or 46.43 percent, which is in accordance with the first hypothesis. Followed by 9 students gained the score in an average level (16-20 points), or 32.15 percent, 4 students gained the score in a very good level (26-30 points), or 14.29 percent, 2 students gained the score in below average level (11-25 points), or 7.15 percent, respectively. The details are as shown in Table 1.

Table 1 The results of knowledge and understanding of the pre-service teachers

Score out of 30	Outcomes	Number of students (28)	Average Score	Ranking
30-26 Scores	Very good	4	14.29	3
25-21 Scores	Good	13	46.43	1
20-16 Scores	Average	9	32.15	2
15-11 Scores	Below average	2	7.15	4
Total		28	100	-

3. The results of the pre-service teachers' creative instruction design ability, in overall, the score was in a very good level (\bar{x} = 93.17) from the full score of 110, which is in accordance with the second hypothesis. When considering in each group, it revealed that all groups gained the score in a very good level. The details are as shown in Table 2.

Table 2 The results of the pre-service teachers' creative instruction design ability

Particulars	Competency Level 105) Scores(
	Groups					
	1	2	3	4	5	6
Total (21 Items)	96	93	103	88	93	86
Competency Level	Very good	Very good	Very good	Very good	Very good	Very good

Total Average(\bar{x})	93.17
Competency Level	Very good

4. The results of the pre-service teachers' instruction ability was in a very good level (89.84 points out of 110 points), which is in accordance with the third hypothesis. When considering in each group, it revealed that Group 1 and 5 had scores in an excellent level, followed by Group 2 and 4 that had scores in a very good level, and Group 3 and 6 had scores in a good level, respectively. The details are shown in Table 3.

Table 3 The results of the pre-service teachers' instruction ability

No.	Particulars	Competency Level 110)Scores(Average Score
		Groups						
		1	2	3	4	5	6	
1	Teacher (4 Items 20 scores)	1 5	1 5	1 7	1 7	1 9	1 6	16.50
2	Content (3 Items 15 scores)	1 2	9	1 2	1 2	1 2	1 2	11.50
3	Instructions (8 Items 40 scores)	3 7	3 0	2 9	2 9	3 4	3 0	31.50
4	Teaching materials and support (3 Items 15 scores)	1 4	1 1	1 1	1 2	1 3	1 1	12.00
5	Measurement and Evaluation (4 Items 20 scores)	1 9	1 6	1 4	1 5	1 7	1 6	16.17
Total Scores		9 9	9 1	8 3	8 7	9 4	8 5	89.84
Average(\bar{x})		89.84						-
Competency Level		Very good						-

5. The pre-service teachers' feedback on ABL instructions with the 6-step DEECEEE was in a high level ($\bar{x} = 4.27$, S.D = 0.68), which is in accordance with the fourth hypothesis. When considering in each aspect, it revealed that the instruction aspect gained the highest average ($\bar{x} = 4.34$, S.D = 0.63), followed by measurement and evaluation ($\bar{x} = 4.28$, S.D = 0.66), materials/games/activities ($\bar{x} = 4.24$, S.D = 0.70), and benefits of the instructions ($\bar{x} = 4.21$, S.D = 0.72), respectively. The details are as shown in Table 4.

Table 4 The pre-service teachers' feedback on ABL instructions (DEECEEE)

No.	Particulars	\bar{X} (S.D	Competency Level
1	Instructions	4.34	0.63	High
2	Materials/Games/Activities	4.24	0.70	High
3	Measurement and Evaluation	4.28	0.66	High
4	Benefits of the instructions	4.21	0.72	High
		4.27	0.68	High

VI. DISCUSSIONS

1. ABL instructions for promoting the creative instruction design ability of the pre-service teachers, Faculty of Education, Silpakorn University, consists of 6 steps, called DEECEEE, which are: Step 1 Draw attention; Step 2 Experience learning; Step 3 Engage in activities; Step 4 Construct new knowledge; Step 5 Exchange knowledge; and Step 6 Evaluate outcomes. In every step of the instructions, the researchers has allowed the students practice and play a role in self-study and group work focusing on learning by doing, by giving opportunities for the students to build knowledge, interact, cooperate and learn in shared responsibility. In addition, the students are able to allocate duties and responsibilities whereas the researcher facilitate the learning management through games and fun activities, as well as competition with score-collecting. Moreover, The students are allowed to create and design new interesting instructions, materials, creative pedagogies, methods of measurement and evaluation that are consistent with the learning outcomes that needed to be achieved for the learners, etc. Related to Ministry of Education [11] stated that ABL instructions is learning through various activities in order to achieve a learning purpose, to analytically think, to learn by doing, including to practice high-order thinking skill. Also, Festus (2013) mentioned that an ABL instruction is a process in which the learners are involved in learning process rather than receiving data from the lectures. It focuses on hands-on training and provides the learners to participate in the activities rather than only listening to the teacher. In addition, Gupte [10] mentioned that the ABL instruction is an educational innovation that helps learners gain experiences, thinking ability and data organization since the learners have the opportunity to practice solving problems by themselves.

2. The results of knowledge and understanding of the pre-service teachers of Art Education Program, enrolling in 462 202 Course - Learning Management and Classroom Management, using ABL instructions (DEECEEE) with 4 units, after the instructions provided, 13 students gained the

scores in a good level (21-25 points), accounted for 46.43 percent, which is in accordance with the first hypothesis. This is probably because Step 2, Experience learning, has given the students to learn about theories, principles, and concepts on various topics related to the contents. After that, the researcher organized Step 3, Engage in activities, by applying theoretical concepts into practice, thus enabling the students gained the scores in a good level. Related to NathawutSakunee [12], who stated that ABL instruction focuses on engaging the learners in learning process by practicing. The students would be enthusiastic and be able to learn, think and reflects what they have done. Moreover, they learn via activities that stimulate knowledge, ideas and contents, concepts that are important to their learning, by helping to encourage the learners to learn meaningfully, gain knowledge of contents, skills, work experiences that lead to understanding of the contents. Also, the students know their own learning mistakes.

3. The results of the pre-service teachers' creative nstruction design ability, in overall, the score was in a very good level, average score ($\bar{x} = 93.17$), which is in accordance with the second hypothesis. This is probably because Step 5 Exchange knowledge of ABL instruction (DEECEEE) has allowed each group present their own works on how the instructions, materials, equipment, and measurement and evaluation are designed. Each group also had opportunity to see, compare and reflect other groups' work. In addition, according to Step 6, Evaluate outcomes, the researcher asked assessment questions to each group of the students regarding advantages and limitations of their works what would be done if the activities, approach, materials, and measurement and evaluation methods are modified, etc. Besides, the students have jointly considered their own works and other groups' by giving and taking comments and suggestions with being open-minded in order to bring those comments to improve, decide and choose the most appropriate principles and concepts for better instructions. Therefore, the instruction design of each group was at a very good level. Related to McGrath and MacEwan [7], stated that ABL instruction is significant to the learners' learning as it can encourage them to be active in learning process through the activities that the learner has practiced. So, it causes the learners to develop long-term knowledge and skills including ABL instruction that can also train the learners to express opinions with thoughtfulness. Furthermore, Limbu [9] mentioned that ABL instructions help the students in collaboration, increase creativity, build confidence and develop understanding through group activities. It also enhances learning pleasure between the students and classmates, including the students and teacher, and helps encourage the students who lack

confidence on opinion expression and speaking to be able to express themselves through activities.

4. The results of the pre-service teachers' instruction ability was in a very good level (89.84 points out of 110 points), which is in accordance with the third hypothesis. This is probably because the pre-service teachers have improved the instruction implemented in schools. According to the examples the researcher has presented and asked the questions in order to encourage the students create works. Evaluation is recommended by group members. In addition, to use the actual lesson plans, the students collaborate in a team and allocate the duties and roles in the instructions with systematic planning so that they can learn from practice. Corresponding with Festus [8] that specified the principles of ABL instructions that the learners learn and gain experience through hands-on training. Limbu [9] also said that ABL instructions helps the learners see surrounding things in everyday life that can be connected to the knowledge learned through hands-on training, touching and remembering. Moreover, the learners have practiced in collaboration. It helps to increase creativity, build confidence for the learners, and develop understanding through group activities in order to increase learning pleasure between the learners and peers, including the students and teacher, and it helps encourage the students who lack confidence on opinion expression and speaking to be able to express themselves through activities.

5. The pre-service teachers' feedback on ABL instructions (DEECEEE) was in a high level ($\bar{x} = 4.27$, S.D = 0.68), which is in accordance with the forth hypothesis. This is probably because the researcher has prepared all the lessons using questions, sample instruction clips of the model teachers and suggested a variety of alternative ways to design activities, materials, and evaluation methods. The researcher has also explained/concluded the content of the additional lessons when the students have questions for clearer understanding. All activities stimulate interest, learning and analytical thinking, and provide the students opportunity to ask questions to discuss, share, learn, and listen to their opinions so that they would feel happy during learning. This is consistent with Limbu [9] that specified that ABL instructions help the learners see things surrounded in everyday life that can be connected to the knowledge learned through hands-on training, touching and remembering through group activities that enhance the joy of learning between the students and peers, as well as the students and teacher. Furthermore, this is in line with the study of SeksanSuksena [13] that has done the development of learner development activity based on ABL instructions together with flipped classroom to promote the characteristics of ASEAN citizens for junior high school students. The objective of the research was to assess the

characteristics of ASEAN citizens and to study the opinions of junior high school students. After the trial of the learner development activity based on ABL instructions together with flipped classroom, the students had the opinions towards the learner development activity based on ABL instructions together with flipped classroom to promote the characteristics of ASEAN citizens as follows: Aspect 1 Knowledge, the students deemed that they have gained more knowledge from the content they learned; Aspect 2 Learning activities, the students believed that they have learned very well through the activities they practiced; and Aspect 3 Enhancing skills, the students believed that they have had courage in expression, advanced thinking process skills and competency of using technology.

Recommendations

1. Recommendations for implementation

1.1 To implement ABL instructions with DEECEEE, the teacher should select suitable games or activities that are related to the contents of each learning unit.

1.2 Each time playing games or doing activities, the teacher needs to clearly explain the rules, regulations, or scoring used in order to keep the games or activities proceeding fluently.

1.3. Using “DEECEEE” learning management, the teacher must inform learning purpose that the lesson plans would be implemented in schools and inform evaluation criteria since the first period.

2. Recommendations for further studies

2.1 There should be ABL instructions (DEECEEE) to improve learning outcomes for other subjects. 2.2 There should be the studies using ABL instructions (DEECEEE) to develop the students’ characteristic in other aspects such as analytical thinking, problem solving, critical thinking, teamwork, leadership and teacher traits, etc.

VII. CONCLUSION

1. ABL instructions for promoting the creative instruction design ability of the pre-service teachers, Faculty of Education, Silpakorn University, consists of 6 steps, called DEECEEE, which are: Step 1 Draw attention; Step 2 Experience learning; Step 3 Engage in activities; Step 4 Construct new knowledge; Step 5 Exchange knowledge; and Step 6 Evaluate outcomes.

2. The pre-service teachers' knowledge and understanding of 4 units using ABL instructions after the experiment, the score of 13 students was in a good level (21-25 points), accounted for 46.43 percent.

3. The pre-service teachers' ability to design ABL instructions, in overall, was in a very good level with average score (= 93.17).

4. The pre-service teachers' ability on ABL instructions was in a very good level (89.84 points out of 110 points).

5. The pre-service teachers’ feedback on ABL instructions with DEECEEE was in a high level (= 4.27, S.D = 0.68).

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Guidelines for Developing Strategies on Hotel Business Market in Thailand to Elevate International standards Leading to Wellness Industry.

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Abstract— This quantitative study aimed to explore guidelines for developing strategies on hotel business market in Thailand leading to elevate international standards leading to wellness industry. The sample group consisted of 4 and 5 hold business industry entrepreneurs (400 persons) in Bangkok, Chiang Mai, Phuket, Hua Hin, Koh Samui, Koh Chang, Khao Yai, and Pattaya. They were obtained by convenience sampling and did not rely on possibility. A set of questionnaires was used for data collection and analyzed by using descriptive statistics. Also, there was an analysis of relationships of guidelines for developing marketing strategies having an effect on hotel business in Thailand to elevate international standards leading to wellness industry. An analysis of correlation coefficient value and multi-stage multiple regression analysis were employed. Results of the study revealed that marketing strategies on product (X1) ($\beta = 0.325$, $\alpha < .01$) and marketing strategies on personnel (X5) ($\beta = 0.159$, $\alpha < .05$) had an effect on the success of hotel business in ASEAN with a statistical significance level. This could explain variance of guidelines for developing strategies on hotel business market in Thailand for 54.2 percent ($R^2 = 0.542$). The predicting equation of the guidelines in the whole dimension (Y) of the standard score was $Z_y = 0.325Z_{x1} + 0.519Z_{x5}$. Besides, it was found that marketing strategies on product (X1) ($\beta = 0.412$, $\alpha < .01$), personnel (X5) ($\beta = 0.652$, $\alpha < .05$), price (X1) ($\beta = 0.305$, $\alpha < .01$), and wellness service had an effect on the elevation of international standards leading to wellness industry with a statistical significance level

Keywords— development guidelines, marketing strategies, wellness industry

I. INTRODUCTION

The Covid-19 situation had a severe effect on tourism. Although Thailand has faced plagues and natural calamities for many times but it must be accepted that Covid-19 causes severe problems most. It is hoped that tourism will recover in the fourth quarter or the early of next year. However, behavioral forms of tourists will change regarding safety. Besides, prevention measure in Thailand still be maintained such as limitations in travelling, moving and gathering of a lot of people. In addition, Thailand has proved the efficiency in plague control to ensure confidence of foreign tourists. At present, wellness tourism is distinctive in the country aside

from tourist attractions. Thai food and culture. Not only this, hospitality and spirits of Thai people are selling points of the country. [1]

Potential in public health of Thailand is strong and effective and well accepted by the world community; particularly on the prevention and control of Covid-19. Interestingly, the board of directors for Thailand development as an international wellness center (Medical Hub policy) and concerned agencies mutually lay a measure urging economy for revenue generating from wellness tourism. Certainly, wellness tourism (Medical & Health Tourism) is the travelling in beautiful tourist attractions with the consciousness of health and environmental maintenance. It mostly flocks in Bangkok and other important tourist places in

Phuket, Pattaya, Chiang Mai etc. These provinces have readiness on medical services popular among foreign tourist. The services include health check, lasik, cosmetic surgery, dental surgery, surgery, recuperation, etc. In addition, alternative medical services such as traditional Thai massage and spa are famous and well accepted across the world. In fact wellness tourism has a wide scope covering travelling to use services up to travelling that has medical activities or alternative medicine. Thus, it is hard to clearly determine size of the market. Based on medical services of private hospitals, however, it can access size of the market on the basis of the statistics on service using. It is found that 60 percent of medical service users are foreigners working in the country and the rest are those visiting Thailand for medical treatment. It can be said that Thailand is an important destination attracting foreigners to use wellness tourism services. There are 2 types of tourism factors based on place and activity as follows [2] :

1. Health promotion tourism Tourists visit various tourist attractions based on their interest or preference and then find available time for doing activities promoting health correctly under academic principles. Examples are traditional Thai massage, spa, aroma therapy, water therapy, etc. This form of tourism helps promote good physical and mental health with relaxation [3].

2. Health healing tourism Tourists find available time to use services on health healing and restoration of health in a hospital or nursing home. Examples are medical check up, disease healing, sex reassignment surgery, etc. Actually, health healing tourism aims to the benefit of health restoration of tourists in a hospital or naturally beautiful place which has an effect on good physical and mental health. [4]

After the Covid-19 crisis, however, it is hard to make a new selling point but the country still has potential selling points which need value adding. The preparation of digital platform to occur in the tourism industry can increase strength of Thai tourism. Aside from the preparation of readiness in tourism rehabilitation based on infrastructure around tourist attractions or entrepreneur places, digital platform helps create new experience for tourists in the new normal age. Skill development (Upskill/Reskill) of people engaged in tourism industry is another important matter which tourism industry must put the importance on it as a priority. This is particularly on man power on health and wellness.

Presently, Thailand has a lot of hotels which are affected by Covid-19 crisis. After the crisis, there is a tendency that these hotels will put the importance on wellness industry due to needs of service users both domestic and foreign service users. Meanwhile, each hotel must adapt it self to be modern as well as the development of effective technology in terms of

safety and convenience. There fore the team of researchers are interested in doing a research on guidelines for developing strategies on hotel business market in Thailand to elevate international standards leading to wellness industry. This aims to cope with tourism and heathservice expected to be interested after the Covid-19 crisis.

II. RESEARCH OBJECTIVES

Specifically, this study aimed to explore guidelines for developing strategies on the development of hotel business market in Thailand to elevate international standards leading to wellness industry.

III. RESEARCH METHODS

This is a quantitative study which the researchers set a conceptual framework under concepts/theories and the exploration of guidelines for developing strategies on hotel business market in Thailand to elevate international standards leading to wellness industry.



Figure 1 Conceptual framework of this study

Research Methodology

Population and sample group

The sample group in this study consisted of 400 hotel entrepreneurs (4 and 5 star hotes) in Bangkok, Chiang Mai, Phuket, Hua Hin, Koh Samui, Koh Chang, Khao Yai, and Pattaya. They were obtained by non-probability sampling and convenience sampling the determination of the sample group size obtained from the formula as follow: [5]

$$n = \frac{Z^2 P(1-P)}{E^2}$$

An amount of the questionnaires was formulated and it must be in an acceptable level under the statistical significance level at 0.05. Besides, it must have an amount which equals to or more than a number of the sample group which had been computed. Thus, it was an amount which could be formulated as the representative of the population.

The formula was shown below:

$$n = \frac{(1.96)^2 (0.5)(1-0.5)}{(0.05)^2} = 384.16$$

Therefore, this study had 400 sample group members obtained by non-probability sampling.

Research Instrument

A set of questionnaires was used for data collection and it consisted of 4 parts as follows:

A. Part : General data of the respondents' hotel i.e. location, hotel class and a number of rooms

Part 2 : Data related to guidelines for developing hotel business market in Thailand to elevate international standards leading to wellness industry.

Part 3 : Data related to relationships of the guidelines.

Part 4 : Problems encountered and suggestions about the guidelines.

Data analyses

Quantitative data were analyzed by using descriptive statistic. Also, there was an analysis of relationships of guidelines for developing strategies on hotel business marketing in Thailand to elevate international standards leading to wellness industry. This was done by correlation coefficient analysis and multi-steps multiple regression analysis.

IV. RESULTS

Table 1 Results of an analysis of guidelines for developing strategies on hotel business marketing in Thailand

Marketing strategies	Model 1			Model 2		
	B	SE B	β	B	SE	β
X_1 : Product	0.429	0.053	0.536**	0.318	0.067	0.325**
X_5 : Personnel				0.542	0.086	0.519*
R^2		0.487			0.523	
R^2 Change					0.031	
F for change in R^2					6.755*	

Dependent Variable: Guidelines for developing strategies on hotel business market in Thailand
(Y)^a *p < .05, **p < .01

According to Table 1, it was found that the marketing strategies on product (X_1) ($\beta = 0.325$, $\alpha < .01$) and personnel (X_5) ($\beta = 0.519$, $\alpha < .05$) had an effect on the elevation of international standards leading to wellness industry with a statistical significance level. This could be explained that variance of guidelines for developing strategies on hotel business market in Thailand to elevate international standards leading to wellness industry for ($R^2 = 0.542$). The predicting equation of the guidelines as a holistic dimension (Y) in the form of standard score was

$$Z_y = 0.325Z_{x_1} + 0.519Z_{x_5}$$

Table 2 Results of an analysis of guidelines for development strategies in hotel business market in Thailand to elevate international standards leading to wellness industry (Tourism)

Marketing Strategies	Model 1			Model 2		
	B	SE B	β	B	SE	β
X_1 / Product	0.349	0.052	0.635**	0.382	0.056	0.612**
X_5 / Personnel				0.545	0.089	0.652*
R^2		0.496			0.645	
R^2 Change					0.455	
F for change in R^2					4.976*	

Dependent Variable: Guidelines for developing strategies on hotel business market in Thailand

(Y)^a *p < .05, **p < .01

According to Table 2, it was found that the marketing strategies on product (X_1) ($\beta = 0.412$, $\alpha < .01$) and personnel (X_5) ($\beta = 0.652$, $\alpha < .05$) had an effect on the elevation of international standards leading to wellness industry with a statistical significance level. This could explain variance of the guidelines for 45.5 percent ($R^2 = 0.455$). The predicting equation of the guidelines as a holistic dimension (Y_1) in the form of standard score was

$$Z_y = 0.412Z_{x_1} + 0.652Z_{x_5}$$

Table 3 Results of an analysis of guidelines for developing strategies on hotel business market in Thailand to elevate international standards leading to wellness industry (Health service/Quality of service)

Marketing strategies	Model 1		
	B	SE B	β
Personnel (X_5)	0.569	0.066	0.548**
R^2		0.574	
R^2 Change		0.458	
F for change in R^2		46.328**	

Dependent Variable: Guidelines for developing strategies on hotel business market in Thailand (Health service/Quality of service (Y_1)) *p < .05, **p < .01

According to Table 3, it was found that the marketing strategy on personnel (X_5) ($\beta = 0.548$, $\alpha < .01$) had an effect on the

elevation of international standard leading to wellness industry (Health service/Quality of service) with a statistical significance level. This could explain that variance of the guidelines for 57.4 ($R^2 = 0.574$). The predicting equation of the marketing strategy having an effect on the elevation of international standards leading to wellness industry (Health service/Quality of service - Y_2 in the form of standard score was $Z_{y2} = 0.548Z_{x5}$

V. DISCUSSIONS

Results of the study about guidelines for developing the strategies on hotel business market in Thailand to elevate international standards leading to wellness. As a whole, it was found that the marketing strategies on product (x_1) ($\beta = 0.325$, $\alpha < .01$) and personnel (x_5) ($\beta = 0.519$, $\alpha < .05$) had an effect on the elevation of international standards leading to wellness industry with a statistical significance level. This could explain variance of the guidelines for 54.2 percent ($R^2 = 0.542$). The predicting equation of the guidelines as a holistic dimension (Y) in the form of standard score was $Z_y = 0.325Z_{x2} + 0.519Z_{x3}$. This conformed to a study of Manerot [2] which found that marketing factors comprised the following : the expenses for medical treatment in Thailand is lower than other countries; promotion of Thai medical tourism abroad; and good quality of Thai medicine (Brand image). For organizational factors and managerial administration, the Thai government has a clear policy on the promotion of medical tourism. Meanwhile, personnel factors comprise professional management because it is mostly private hospitals having readiness on specialist doctors and friendly service. This also conformed to a study of Theeranon [7] which found that Thailand has competitive advantage in terms of readiness in medical service and tourism with high standard of services. Besides, it was found that hospitals in Thailand are certified most in Asia on the basis of international standards (Join Commission International : JCI). It also conformed to the World Economic Forum [8] which revealed that Thailand had advantage in health service since the country is well accepted by foreign tourists in terms of health service resulting in the continual expansion of wellness tourism. In addition, The Travel & Tourism Competitiveness Report ranks ASEAN member based on the competitive capability in travel and tourism. However, the researchers agreed that Thailand has diversity of wellness tourism products in terms of health maintenance and promotion. This makes the country be able to develop personal in hotel business based on health tourism service to meet international standards.

Regarding tourism, it was found that the marketing strategies on product (x_1) ($\beta = 0.412$, $\alpha < .01$) and personnel (x_5) (β

$= 0.652$, $\alpha < .05$) had an effect on the elevation of international standards with a statistical significance level. This could explain variance of the guidelines for 45.5 percent ($R^2 = 0.455$). The predicting equation of the guidelines as a holistic dimension (Y_1) in the form of standard score was $Z_y = 0.412Z_{x1} + 0.652Z_{x5}$. This conformed Kasikorn Research Center [9] which indicated that the current wellness tourism or health tourism is popular due to health care awareness. It was consistent with an increase in a number of tourists visiting Thailand. The advantage point of Thailand is rich of tourism resources and distinctive culture such as Thai food, herbs, Thai traditional medicine, local sorts, religion, and hospitality. It is found that there are 1.2 million foreign tourists visiting Thailand per year with the purpose of medical treatment. This conforms to Tourism Authority of Thailand [10] which claimed that wellness tourism is important to the development and promotion of Thai tourism market in the age of still competition in ASEAN region. Each country there put the importance on the development of forms of tourism. Malaysia, for instance, has a policy on the center of tourism for Islamic tourists. Meanwhile, Singapore has a policy on tourism promotion which puts the importance on medical tourism. It also conforms to Global Wellness Institute [11] which claimed that wellness tourism is a form of tourism having relation with some business groups particularly on specific forms of tourism such as culinary tourism, cultural tourism, sport tourism, etc. In fact wellness tourists usually have a secondary objective related to other types of tourism. This conforms to a research of Asavarojkul [12] which found that worthwhile price and good service are factors having an effect on attitudes and motivation in wellness tourism and marketing factors have influence on the decision-making to use wellness tourism service.

Meanwhile, the researchers agreed that wellness tourism is a form of direct and indirect tourism based tourism activities chosen by a tourist. Forms of tourism activities depend on potential of tourism resources in each area which may be in the form of combination as creative tourism. The competitive advantage of Tourism is actually on the basis of perception about needs of a specific tourist group and knowledge/understanding about tourist behaviors.

Regarding health service and quality of service, it was found that the marketing strategy on personnel (x_5) ($\beta = 0.548$, $\alpha < .01$) had an effect on the elevation of international standards leading to wellness industry on health service and quality of service with a statistical significance level. This could explain variance of the guidelines based on health service and quality of service for 57.4 percent ($R^2 = 0.574$). The predicting equation of the marketing strategies having an effect on the elevation of international standards on health

service and quality of service (Y_2) in the form of standard score was $Z_{y_2} = 0.548Z_{x_5}$. This conformed to the competitive strategies of hotel business of Bordean and Borza [13] which showed that successful competitive strategies above the competition of hotel business include : 1) differentiation strategy such as development of special products and services, quality control, brand development, distinctive service, business image, etc. and 2) the strategy on cost leadership such as effective use of production power, income predicting, experience line from learning, technological advancement, and outsourcing. It conformed to a study of Kanittinsuttitong [14] which found that entrepreneurs in all regions of Thailand have potential to accommodate wellness tourism needed at present. However, there were no entrepreneurs on Eco-spa, Ashrams, and Healthy Hotel in all regions. It was also found that entrepreneurs on wellness tourism in central Thailand still have not enough potential in service based on mental care. In fact, entrepreneurs engaged in wellness tourism and other concerned personnel should view wellness tourism as a whole by building coordination networks of both tourism business and health service business.

However, the researchers perceived that personnel development in the hotel business sector leading to be a wellness industry hotel is an important factor as a priority. This is because wellness tourism must rely on skillful workforce which cannot be replaced by technology so development of skills under health service is needed. Meanwhile, hotel personnel in Thailand are distinctive on the basis of hospitality as foundation of good service. However, training on skills in wellness tourism is advantage.

VI. RECOMMENDATIONS

A. Recommendations for Practices

1. It can be a guideline for hotel entrepreneurs in Thailand to develop products of wellness industry for future sustainability.
2. Concerned public and private agencies can use results of the study as a guideline for creating coordination on health or wellness tourism. This aims to connect operation between the public sector and entrepreneurs concretely in the future.
3. Gaining perception about the adaptation of hotel business leading to wellness industry for market positioning after Covid-19 crisis.
4. Gaining perception about a guideline for promotion and developing body of knowledge to personnel in order to continually elevate international standards leading to wellness industry. This includes language skills and attention in integration together with technological development.

B. Recommendations for Further Research

1. It should have a study on guidelines for developing body of knowledge and skills for hotel business personnel in order to elevate international standards leading to wellness industry.
2. It should have a study on the promotion of image creation about wellness industry of Thailand in accordance with world standards.
3. It should have a study on needs for long stay for foreign tourists in the form of wellness industry in Thailand.

VII. CONCLUSION

Hotel business is part of tourism industry which generate a lot of income to the country and hotel business. Unfortunately, Covid-19 pandemic has severed impacts on the country, hotel business and Thai people. Foreign tourist cannot visit Thailand during this time but it is expected that they will be allowed to visit the country soon due to effective control of the crisis. It can be said that safety and wellness tourism are distinctive factors of Thai tourism industry. This helps support and promote tourism in Thailand to be lively again. The determination of strategies on the expansion of tourism market particularly the plan on beauty and wellness tourism can create tourist perception of Thai image as "Health and wellness destination". Also, the adoption of concept of quality service can truly motivate or attract foreign tourists to visit the country

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Gendered entrepreneurship education and the fear of failure

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Abstract— Studies on the impact of innovation for entrepreneurship indicate that innovation is important to foster businesses through new or improved services, products or processes. However, from a gender perspective, lack of competitiveness and innovativeness has proven to destructively affect entrepreneurs, which in many cases led to failure. Thai women entrepreneurs have a tendency to approach markets with products that are already known to the end-users, combined with a non-innovative “me too” approach in entrepreneurial activities, copying existing businesses rather than exploring replacements while experiencing high fear of failure rates. There is a gap in literature on the necessity for entrepreneurship educators for a gendered educational approach on the perceived fear of failure and its impact on entrepreneurial innovation. This study adds to the body of knowledge in women entrepreneurship education by exploring the fears of entrepreneurs and the relationship between fears and knowing another entrepreneur. Using data from 1,668 entrepreneurs in Thailand, this study explores gendered entrepreneurship education in relation to fear of failure, as the fear to fail has impact on entrepreneurial innovativeness. Do entrepreneurs innovate in new or improved services, products or processes despite fearing to fail in their businesses? Does this change over time from a start-up to an established business and to which extent can this be influenced by knowing other entrepreneurs? Entrepreneurship education can help overcome fear of failure and in series lead to more innovative products, services and processes

Keywords— entrepreneurship education; fear of failure; innovation; networks; women entrepreneurs

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I. INTRODUCTION

The entrepreneurship phases in GEM are viewed as a process starting with potential entrepreneurs, mainly led by their beliefs and attitudes and intending to start a business within the next three years, over just starting up (nascent) to running a new and later an established enterprise. GEM assesses this process at the different points in the enterprise’s life. This paper refers to innovativeness of total early-stage entrepreneurial activity (TEA) business owners -either nascent or new-and established entrepreneurs. The two phases-approach to firm development is useful to frame the different stages a firm passes through, since each entrepreneurial phase represents a specific strategic context in which the entrepreneur operates; influencing the needs for innovation, for resources and the nature and extent of his/her contacts (Hite & Hesterly, 2001; Larson & Starr, 1993).

Entrepreneurship Education

Entrepreneurial attributes like problem-solving skills, change management and creativity are essential skills needed for the

economic development of a society, which highlights the relevance of entrepreneurship and of entrepreneurship education (Henry et al., 2005). The educational field of entrepreneurship is growing with the ongoing discussion, if entrepreneurship can be taught and how entrepreneurship courses should differ from traditional management courses (Karlsson & Moberg, 2013; Neck & Greene, 2011). Unger et al. (2011) propose that a human capital & entrepreneurial success relationship was higher for knowledge and skills as an outcome of education and specifically higher for human capital that was directly related to entrepreneurial tasks. Previous research indicates the importance of action-based and experiential approaches to developing entrepreneurial capabilities (Erkkilä, 2000; Gibb, 2008; Heinonen & Hytti, 2010). Objectives of entrepreneurship education intend to equip students with broader perspectives, entrepreneurial knowledge base and skillset, and entrepreneurial behavior for future entrepreneurial activities (Blenker et al, 2006; Ilozor et al, 2006; Moberg, 2011). Key success factors for effective academic and non-academic programs tend to successfully transform course objectives into entrepreneurship

studies(Klofsten, 2000). Because the effectiveness of entrepreneurship education or entrepreneurship training programs not only depends on its curriculum, but also on individual, human, and contextual factors (Bullough, De Luque, Abelzahr & Heim, 2015), entrepreneurship education might help overcome constraints stemming from individual factors.

Innovation Capability

Entrepreneurship and innovation are closely linked and are positively related (Miller & Friesen, 1982) and the innovation process is one important factor for firm performance and economic growth (Yu & Si, 2012). The capability to innovate relates to several fields of research in strategy and organization which link classic managerial theories of the firm and growth (Schumpeter, 1934). These theories introduce the importance of seeking innovative uses for existing corporate resources to enable new ideas, processes and products. Authors have mentioned innovations as “technology-push” and “market-pull” innovations. Former originate from scientists or knowledgeable persons in the field(Dosi, 1988; Workman, 1993) vis-à-vis their technical and business implications while latter are either extensions or modifications of existing products, processes or ideas that have implications from the market and the industry(Dosi, 1988; Tushman & Anderson, 1986).

Levie defines innovation confidence as “the degree to which individuals are willing to engage with and perceive benefit from new products or services, or products or services that embody new technology”(Levie, 2008, p.4). A higher innovation confidence is generally found in entrepreneurs than in non-entrepreneurs - both in startups and in established businesses. Levie’s measures are composed of three survey items: (1) willingness to buy new products or services; (2) willingness to try new products and services that involve new technology; and (3) beliefs about how/whether innovations will improve their lives.

Fear of Failure

Gender differences in entrepreneurship are well documented in previous research (Kelley, Brush, Greene, & Litovsky, 2013; Popescu, 2012). However, no gender-related differences in venture innovation / risk situations and strategies for new and established enterprises exist, with innovation being defined as creating a new, unique, and different product or service. (Sonfield et al, 2001). Arenius and Minniti (2005) call fear of failure a perceptual variable with influence on an individual’s start-up decision. It is closely related to uncertainty and risk-taking and therefore an important factor constraining entrepreneurial activity, especially firm entry(Caliendo et al, 2009). In addition, fear

of failure directly influences an individual’s motivation on his achievements and aspirations(Burnstein, 1963) and his decisions on if to exploit a business opportunity or not(Welpe et al, 2012).

Fear of failure may be seen as a form of loss aversion (Morgan & Sisak, 2016). For those holding such fears, losses or failures weigh more heavily than gains or successes. Both are measured relative to individual reference points. Potential entrepreneurs decide first whether to enter into ‘risky’ entrepreneurship or go for a ‘safe’ employment status. In a second step, they choose the investment intensity into their enterprise. These investments, e.g. in innovation, together with random factors such as luck determine chances of success of each venture (Morgan & Sisak, 2016). The fear to fail is a subjective perception or personal judgement which does not necessarily take objective circumstances into account. According to Deniz, Boz, and Ertosun (2011), fear is a strong emotion that can hinder making progress toward goals and thus impacting innovativeness in products, services and processes. Positive and negative emotions significantly decrease time and resource allocation of entrepreneurs to exploit new opportunities and to innovate (Grichnik, 2008). Moreover, feeling threatened by potential failure is one of the reasons for actual business failure(Brun de Pontet, 2004), leading to a behavior of avoidance and inaction, finally resulting in failure.

Previous research confirms that female entrepreneurs in general experience higher levels of fear of failure when doing business(Kelley et al., 2013). This is also true for Thai entrepreneurs, where 54.8% of the TEA and 55% of the established women entrepreneurs fear to fail compared to 47% of male established entrepreneurs and 38.9% of TEA entrepreneurs(Guelich, 2018). Fear of failure as a perceptions variable limits women entrepreneurs more than men to reach their full potential.

Therefore it is hypothesized that:

H1: There are gender differences in the impact of fear of failure on innovativeness, regardless of business phase.

H2: An individual’s fear of failure will be negatively related to innovativeness for women entrepreneurs, regardless of business phase.

Entrepreneurial Network

Gender affects the entrepreneur’s access to a network, its composition and effectiveness (Blake & Hanson, 2005). For both male and female entrepreneurs, entrepreneurial challenges change through the phases of their “business life cycle”, for start-ups to running a new and later an established enterprise. Previous research also highlights gender-related network differences for the different business phases. (DeTienne & Chandler, 2007). First-hand information from

other recent start-ups helps to deliver a clearer picture of the until date uncertain future for the potential entrepreneur. Compliance exists that knowing an entrepreneur is an important source of information for potential entrepreneurs in the early phase of venture creation where they are searching for opportunities (Davidsson & Honig, 2003; Ewald, Klyver, & Svendsen, 2006; Klyver & Hindle, 2007) and is positively and significantly related to being a nascent entrepreneur (Arenius & Minniti, 2005). The ability to identify and to access opportunities is regarded as an important entrepreneurial capability for innovativeness (DeTienne & Chandler, 2007; Hanson & Blake, 2009; Shane & Venkataraman, 2000). Other entrepreneurs might act as role models and have positive impact by reducing ambiguity and providing information, inspiration, advice and connections to others (Kelley et al., 2013). However, knowing other entrepreneurs does not necessarily imply that they are positive role models. In either case, as a positive or negative role model, the direct observation of other entrepreneurs reduces ambiguity and uncertainty associated with entrepreneurial activity (Minniti, 2005).

Kelley et al (2013) found, that women entrepreneurs around the globe were less likely to know entrepreneurs compared to their male counterparts. This is also true for Thai entrepreneurs where only 40.8% of the female TEA entrepreneurs (55.6% male) and 34.1% of the female established entrepreneurs (46.4% male) have another entrepreneur in their network (Guelich, 2018).

Therefore it is hypothesized that:

H3: The impact of knowing an entrepreneur on fear of failure and its resulting influence on innovativeness is higher for female than for male TEA businesses.

H4: Knowing an entrepreneur positively reduces the influence of fear of failure on innovativeness for TEA businesses.

II. STATEMENT OF CONTRIBUTION / METHODOLOGY

This study tries to contribute to gendered entrepreneurship education in relation to the impact of fear of failure, which tends to hinder women entrepreneurs to be innovative. Do they innovate in new or improved services, products or processes despite fearing to fail in their businesses? Does this change over time from a start-up to an established business and to which extent can this be influenced by knowing other entrepreneurs? There is a gap in literature on the necessity for entrepreneurship educators for a gendered educational approach on the perceived fear of failure and its impact on entrepreneurial innovation. This study adds to the body of knowledge in women entrepreneurship education by exploring the fears of entrepreneurs and the relationship between fears and knowing another entrepreneur as an

entrepreneurship training program's effectiveness depends on its own elements and individual, human, and contextual factors (Bullough, De Luque, Abelzahr & Heim, 2015).

This paper uses GEM data from 2017, collected in Thailand, a country with an equal proportion of female and male entrepreneurs, with three questions on innovative behavior in the entrepreneurial process. The samples of 1,668 entrepreneurs consist of start-ups and young businesses (N=548, thereof 239 male and 309 female) and established businesses (N=865, thereof 416 male and 449 female). Two main phases in the entrepreneurial process are distinguished: start-ups and young businesses or total early-stage entrepreneurial activity (TEA) and established businesses (EST). Regression analysis is used to answer the question, if the fear to fail has impact on the innovativeness in men and women when doing business and if this differs with an entrepreneurial network.

Using Levie's survey items (Levie, 2008), one dependent variable was computed as the means of the three innovation variables:

1. INNVBUY: In the next 6 months, you are likely to buy products or services that are new to the market.

2. INNVTRY: In the next 6 months, you are likely to try products or services that use new technologies for the first time.

3. INNVLIFE: In the next 6 months, new products and services will improve your life.

Independent variables were fear of failure (FRFAIL: Would fear of failure prevent you from starting a business?) and the entrepreneurial network of knowing an entrepreneur (KNOWENT: Do you know someone personally who started a business in the past 2 years?). To investigate the moderating effect of fear of failure on innovativeness in a certain business phase, two moderators were created: TEA*FRFAIL and EST*FRFAIL. Further to test the effect of knowing an entrepreneur on the influence of the fear to fail on innovativeness, two additional moderators were created: TEA*FRFAIL*KNOWENT and EST*FRFAIL*KNOWENT.

III. RESULTS, DISCUSSIONS AND CONCLUSIONS

Using a Likert scale from 1 to 5 to evaluate the degree of innovativeness, where 1=strongly agree, 2=agree, 3=neither agree nor disagree, 4=disagree and 5=strongly disagree, a lower resulting number reflects more innovativeness than a higher number. The means of 2.96 for male and 2.92 for female entrepreneurs reflect a slightly higher than average innovativeness for Thai entrepreneurs (average=3) with women entrepreneurs being more innovative than their male counterparts. Negative Beta coefficients indicate an increase

in innovativeness as the dependent variable has decreased in response to the increase of the independent variable. No significance was found for fear of failure on innovativeness for both business phases, whereas knowing an entrepreneur positively influenced innovativeness for both gender and both business phases, slightly higher for men than for women entrepreneurs (Table 1). Thus, both Hypothesis 1 (H1: There are gender differences in the impact of fear of failure on innovativeness, regardless of business phase.) and Hypothesis 2 (H2: An individual's fear of failure will be negatively related to innovativeness for women entrepreneurs, regardless of business phase.) are not confirmed.

Table 1: Regression coefficients to study the effect of fear of failure and entrepreneurial networks on innovativeness

Independent Variables	male		female	
	Regression coefficient	p-value	Regression coefficient	p-value
TEA (involved in early-stage entrepreneurial activity)	-.649	.006	-.584	.005
fear of failure	.327	.133	-.302	.128
knowing an entrepreneur	-1.039	.000	-.982	.000
EST (manages and owns a business that is older than 42 months)	.869	.000	.905	.000
fear of failure	.417	.053	-.225	.253
knowing an entrepreneur	-1.137	.000	-1.053	.000

The R Square values in Table 2 exhibit that less variance is accounted for by women entrepreneurs with 3.9% for female TEA (5.0% male) and 5.4% female EST (6.2% male), thus Hypothesis 3(H3: The impact of knowing an entrepreneur on fear of failure and its resulting influence on innovativeness is higher for male than for female entrepreneurs.) is not supported.

Table 2: Regression model summary to study the effect of knowing an entrepreneur and its influence on fear of failure on innovativeness

	TEA businesses	established businesses
Gender	R Square	R Square
male	0.050	0.062
female	0.039	0.054

A moderating effect of fear of failure on innovativeness of TEA and EST entrepreneurs without the effect of knowing an entrepreneur is not prevalent (Table 3). However, the moderating effect of knowing an entrepreneur considerably increases innovativeness by impacting fear of failure for both genders in TEA entrepreneurs (Table 4). While the effect is similar for men and women TEA entrepreneurs, there is a

difference for established business owners: established women entrepreneurs significantly increase their innovativeness as a result of the moderating effect of knowing an entrepreneur on fear of failure, whereas no significance was found for male established entrepreneurs. The effect on innovativeness for established women entrepreneurs is even higher (-.926) than for start-up women entrepreneurs (-.875). Thus, Hypothesis 4 (H4: Knowing an entrepreneur positively reduces the influence of fear of failure on innovativeness for TEA businesses.) is confirmed.

Table 3: Regression coefficients to study the moderating effect of fear of failure on innovativeness in entrepreneurs

Independent Variables	male		female	
	Regression coefficient	p-value	Regression coefficient	p-value
TEA (involved in early-stage entrepreneurial activity)	-.795	.005	-.552	.052
moderator TEA*fear of failure	-.102	.800	-.261	.449

EST (manages and owns a business that is older than 42 months)	.379	.142	.981	.000
moderator TEA*fear of failure	.991	.001	-.171	.544

Table 4: Regression coefficients to study the moderating effect of entrepreneurial networks on fear of failure and innovativeness in entrepreneurs

Independent Variables	male		female	
	Regression coefficient	p-value	Regression coefficient	p-value
TEA (manages and owns a business that is older than 42 months)	-.620	.016	-.494	.030
moderator TEA*fear of failure*entrepreneurial network	-.933	.044	-.875	.031

EST (manages and owns a business that is older than 42 months)	.890	.000	1.072	.000
moderator EST*fear of	-.294	.414	-.926	.011

failure*entrepre-neu rial network				
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IV. DISCUSSION AND CONCLUSIONS

Contradicting previous research which highlighted gender-related network differences for the different business phases (DeTienne & Chandler, 2007), we found that there are no significant gender differences in the impact of fear of failure on innovativeness, regardless of business phase. The impact of knowing an entrepreneur and its influence on fear of failure on innovativeness is interestingly higher for male than for female entrepreneurs. However, the moderating effect of knowing an entrepreneur considerably increases innovativeness by impacting fear of failure for both genders in TEA entrepreneurs, thus confirming previous findings, that knowing an entrepreneur is an important positively related source of information for entrepreneurs in the early phase of venture creation (Arenius & Minniti, 2005; Davidsson & Honig, 2003; Evald et al., 2006; Klyver & Hindle, 2007).

On the other hand, the findings of this study indicate, that a perceived fear of failure can be moderated by having an entrepreneurial network, thus reducing the fear's negative relationship to uncertainty, risk-taking and in series constraining entrepreneurial activity (Arenius & Minniti, 2005; Caliendo et al., 2009). Interestingly, established women entrepreneurs, despite experiencing an overall higher fear of failure rate and having less access to other entrepreneurs, are significantly and positively impacted in their innovativeness in products, services and processes through knowing other entrepreneurs which influences their fear to failure and leads to innovative behavior. Fear that initially hinders entrepreneurs in making progress toward goals (Deniz et al., 2011), and that decreases their time and resource allocation to exploit new opportunities and to innovate (Grichnik, 2008) and leads to a behavior of avoidance and inaction (Brun de Pontet, 2004), can thus be positively influenced and minimized. Where fear to fail was a drawback to innovativeness for female entrepreneurs, knowing another entrepreneur helped them overcome this obstacle.

Adding to the findings of Morgan & Sirsak (2016), we confer that an individual woman entrepreneurs' fear of failure is an important predictor on business investment, be in form of financial or behavioral form, such as innovating products, services or processes as potential losses and perceived fear to fail outweigh potential gains or successes. As the effect of fear of failure on business decisions is unambiguously negative, e.g. higher fear of failure discourages entry into entrepreneurship and entry into new innovative, (Bullough, De Luque, Abalzaher & Heim, 2015). As a result a women's entrepreneurship training or education program must address

the trainers who can come from a diverse background, be it academically trained university professors (Katz, 2002) to practicing entrepreneurs (Sexton, Upton, Wacholtz & McDougal, 1997) or a combination of the two. In addition, human factors, human capital, entrepreneurial capabilities, and personality and cognitive traits play a role to foster women's entrepreneurship innovation despite a high fear of failure rate.

Contribution

The results of the study are valuable for both academia and practitioners. The exploratory findings that knowing entrepreneurs can influence the impact of the fear to fail on innovativeness for male and female TEA entrepreneurs and female established business owners have a positive connotation. Contrary to what is generally assumed, women in the right business environment tend to be able to counteract their fear of failure with an entrepreneurial network and further increase their innovativeness in their business approach to new products, services and processes. In addition, a gendered approach towards entrepreneurship education can help improve networking capabilities, reduce fear of failure and increase innovative behavior. The findings highlight the importance of entrepreneurial networks for women entrepreneurs for an innovative business approach. Entrepreneurs should become more aware of and willing to seek advice from others, especially from other entrepreneurs, in order to cope with their fears about business failure. For an approach in practice, further studies are necessary to explore what specifically needs to be done in entrepreneurship education to innovate women entrepreneurs. Further, a gap still exists in how fear of failure and knowing an entrepreneur interact and what specifically leads to the increase in innovativeness.

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Information Literacy of Students in One Private Higher Education Institution in the Philippines

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Abstract— *The information environment of the 21st century is defined by an influx of educational resources and the pervasiveness of technologies. Information comes from a variety of sources, including people, organizations, institutions, agencies, and networks, and it travels through numerous media: Books, radio, television, newspapers, magazines, journals, online resources, social media, and the internet are all good sources of information. Of all the resources where people utilized, internet has become an integral part of everyone's lifestyle. Hence, students must develop information literacy skills in order to function in society especially in this kind of society. This descriptive study was conducted to determine the information literacy skills of students in one private higher education institution in the Philippines along the following: recognizing information need, accessing information, evaluating and integrating information, using information for a purpose, and using information legally and ethically. A descriptive survey was conducted among 594 students across all the departments of the university. Results revealed that overall; the level of the assessed information literacy skills of students is Proficient. Tertiary students are proficient along the five (5) skills such as Skill in Recognizing Information Need, Skill in Accessing Information, Skill in Evaluating and Integrating Information, Skill in Using Information for a Purpose, and Skill in Using Information Legally and Ethically*

Keywords— *Information Literacy, Higher Education, Skill in Recognizing Information Need, Skill in Accessing Information, Skill in Evaluating and Integrating Information, Skill in Using Information for a Purpose, and Skill in Using Information Legally and Ethically*

I. INTRODUCTION

The information environment of the twenty-first century is defined by an influx of educational resources and the pervasiveness of technologies (Alexander, 2018). Information originates from a variety of sources, including people, organizations, institutions, agencies, and networks, and it travels through a variety of mediums, including books, radio, television, newspapers, magazines, journals, online resources, social media, and the internet. Information excess, also known as information overload, is a phenomenon that occurs when there is too much information available (Perrault & Ferrucci, 2020). This situation continues to grow at an exponential rate.

The internet has become a vital part of everyone's lifestyle, out of all the resources that people have used. Many individuals use social media platforms to stay in touch with friends and family, as well as to gather information and news from all around the world (Huang & Su, 2018). As a result, social media plays a critical role in the dissemination of news and information. In reality, traditional information mediums

such as newspapers and television have played a smaller part in how people gather and consume news and information today (Bergstrom & Herveylcke Belfrage, 2018). Without a doubt, the rise of social media platforms has aided in this shift. Indeed, the popularity of social media sites such as Twitter and Facebook has exploded. As of January 2020, Facebook, for example, claimed to have 2.80 billion users. On a daily basis, 1.69 billion of these users utilize Facebook (Sharif, Soroya, Ahmad & Mahmood, 2021). On the other hand, as of January 2021, Twitter has 330 million users. Since the inception of the individual platforms, these figures have been steadily increasing. As a result of their users' ability to report big events and catastrophes around the world, these social media platforms are already being referred to as 21st-century newspapers. People use Facebook and Twitter to share articles, videos, photos, and news. In fact, about 85% of the subjects discussed on Twitter are news-related (Keib, Himelboim & Han, 2018).

However, not all social media posts and articles are accurate and reliable. Many of the posts on social networking sites are deemed to be bogus and untrue (Koulolias, Jonathan, Fernandex & Sotirchos, 2018). Because these social media

sites are open to the public, anyone can post and distribute information, whether genuine or false. People are also less inclined to check the news that their friends share, resulting in the rapid spread of inaccurate and misleading information. False or unconfirmed information spreads on the internet in the same way that genuine information does, potentially going viral and affecting public opinion and decisions. Fake news and rumors are the most common types of inaccurate and unverified information, and they should be caught as soon as possible to avoid their disastrous consequences. As a result, in recent years, there has been a surge in interest in effective detection approaches. The majority of fake news items are found on malevolent websites designed to propagate misinformation (Shu, et. al., 2020). Authors, malicious users working with them or social media bots, as well as inattentive people, who do not care to check the source of the article before sharing it, frequently share them on social media platforms.

This phenomenon of fake news and unreliable information predominating in the educational sector, particularly among students, is also true. According to literature, Generation-Z students are the most exposed to misleading news and false information (Pazon, 2018). According to previous research, these students simply ingest everything they see on the internet, and even worse, use this material as part of their needs, such as homework and activities, without sufficient verification or review (Perez-Escoda, et. al., 2021; Click, et. al., 2019). In fact, according to a survey, students at the college level do not use credible information sources and instead rely primarily on Google and Wikipedia. Monographs and databases containing peer-reviewed journal articles are rarely used. Students do not use search methods or mechanisms accessible to them to assist in the location of credible sources when utilizing the Internet via search engines. Students frequently confuse monographic and serial publications, and they frequently employ unproven blogs and dubious information sources in place of other validated research sources (Neely-Sardon & Tignor, 2018). Students are unable to locate mentioned sources and, conversely, are unable to properly cite the sources they use. What happens is that learners develop a habit of using fake news and unreliable information as educational tools, which can have severe consequences for their learning and development (Mcdougail, 2019).

With these in mind, it's crucial to mention that librarians, as one of the information's forerunners, should be concerned about what's going on with students' use of fake news and incorrect information. To prevent fake news among generation z-learners, librarians could assist students in developing their information literacy skills (Julien, Gross &

Latham, 2018). In order to thrive in today's culture, students must gain information literacy abilities. The only people who will thrive in today's information-overloaded society and mankind are the information literate. The set of skills required to discover, retrieve, organize, and analyze information is known as information literacy. It is something that all students must learn in order to efficiently finish research while also being prepared to discover the data they require for any decision or assignment in life, making them more prepared to do so in all scenarios. This new universe of information is overwhelming at best, and it is no longer enough for people to have access to a wealth of information; they must also possess the necessary abilities to effectively and efficiently get excellent information from the plethora (Tidmarsh, 2021). An information literate person has the ability to sift through a plethora of data to find the relevant information. Information literacy (IL) is critical for learning and human capital development, as well as lifelong learning and knowledge generation. A person who is information literate knows when they need information, how to look for and locate it, how to evaluate information sources, and how to successfully use the information that has been found (Hee, et. al., 2019). The integration of information literacy abilities into the basic education curriculum is an attempt to give students and teachers with truly meaningful experiences (Tewell, 2018). The purpose of educational institutions is to develop lifelong learners. Schools provide the foundation for continued growth throughout their careers, as well as in their roles as informed citizens and members of communities, by ensuring that individuals have the intellectual abilities of reasoning and critical thinking, and by assisting them in constructing a framework for learning how to learn. Information literacy is an important component of lifelong learning and a contributor to it (Bapte, 2019). Information literacy teaches students how to spot deceptive, out-of-date, or fraudulent material. It also assists them in sorting through the material and properly interpreting it. Hence, this study was conducted to determine the information literacy skills of students in one private higher education institution in the Philippines along the following: recognizing information need, accessing information, evaluating and integrating information, using information for a purpose, and using information legally and ethically.

II. METHODS

A. Research Design

This study utilized a quantitative type of research employing descriptive survey method.

B. Respondents of the Study

The respondents of the study were the 1,128 students of a

Private Higher Education Institution in the Philippines.

Table 1. Distribution of the Respondents of the Study

Respondents	Frequency	Percentage
Engineering, Architecture and Information Technology	305	27.04
Accountancy, Business and Hospitality	657	58.24
Education, Arts, Sciences and Health	166	14.72
Total	1,128	100.00

C. Research Instrument

The study utilized a standard questionnaire which was adopted from Marvel (2015). Questions 1-3 are on Recognizing Information Need / Task Definition, 4-6 on Accessing Information / Information seeking strategies; Location and access, 7-9 on Evaluating and Integrating Information / Use of information, 10-12 on Using Information for a Purpose / Synthesis, and 13-15 on Using Information Legally and Ethically / Evaluation. The questionnaire underwent content validation and expert validation prior to its administration.

D. Data Analysis

The data gathered were analyzed using weighted mean using the following range and qualitative descriptions:

Range	Qualitative Description
2.25 – 3.00	Exemplary
1.50 – 2.24	Proficient
0.75 – 1.49	Novice
0.00 - .074	No demonstrated Achievement

III. RESULTS AND DISCUSSION

Table 2. Level of Assessed Information Literacy Skills of Tertiary Students along Recognizing Information Need

Skill in Recognizing Information Need	Mean	QD
The information literate student defines and articulates the need for information.	1.79	Proficient
The information literate student identifies a variety of types and formats of potential sources for information.	1.78	Proficient
The information literate student considers the costs and benefits of acquiring the needed information.	1.73	Proficient
The information literate student reevaluates the nature and extent of the information need.	1.89	Proficient
Mean	1.80	Proficient

Looking closer into the table, the findings show that college students are *Proficient* in terms of their *Skill in Recognizing Information Need*. Of the four (4) skill indicators along information need recognition, the participants are most *Proficient* particularly in their *ability to re-evaluate the nature and extent of the information need*, having the mean of 1.89. This means that the students possess a satisfactory mastery of the skill to clarify, revise or refine their questions, as well as to make information decisions and choices. This is consistent with the findings of Bartol, Dolnicar, Podgornik, Rodic and Zarnovie (2018) about students being most successful in information need identification and also with Samson (2010) who revealed students as possessing very satisfactory information literacy skill along determining the nature and extent of the information needed.

Table 3. Level of Assessed Information Literacy Skills of Tertiary Students along Accessing Information

Skill in Accessing Information	Mean	QD
The information literate student selects the most appropriate investigative methods or information retrieval systems for accessing the needed information.	1.53	Proficient
The information literate student constructs and implements effectively-designed search strategies.	1.57	Proficient
The information literate student retrieves information online or in person using a variety of methods.	1.68	Proficient
The information literate student refines the search strategy if necessary.	1.65	Proficient
The information literate student extracts, records, and manages the information and its sources.	1.70	Proficient
Mean	1.63	Proficient

In the table, the college students are revealed to be *Proficient*, with the cluster mean of 1.63, in terms of their *Skill in Accessing Information*. Of the five (5) indicators under this information literacy skill, the college students specifically have the highest mean of 1.70 on their *ability to extract, record, and manage the information and its sources*. This implies that the participants have mastered the skill in selecting the most appropriate technology in retrieving information, what strategies are most effective in accessing information, and which citation details are important to be recorded for future referencing. Korobili, Malliari and Christodoulou (1999) had similar findings with a group of Greek students who claimed to have used sources and tools in the library and who considered that they have achieved a mastery of almost all the items concerning the process of

retrieval of information. In addition, some other studies reported students being comfortable with developing search strategies, choosing search terms and searching information via the Internet (Al-Issa, 2013; Saunders et al., 2015), capable of locating and retrieving information (Gutierrez, 2014) and purposeful in their use of search strategies (Coklar, Yaman, & Yurdakul, 2016). As a further support, according to Hsieh, McManimon and Yang (2013), the group of students in their study performed better in identifying a variety of types and formats of potential sources of information than the rest of the areas. Moreover, it is quite remarkable that in teaching the same information literacy skill, the tertiary librarians and faculty have rated themselves highest along this skill indicator.

Table 4. Level of Assessed Information Literacy Skills of Tertiary Students along Evaluating and Integrating Information

Skill in evaluating and integrating information	Mean	QD
The information literate student summarizes the main ideas to be extracted from the information gathered.	1.90	Proficient
The information literate student articulates and applies initial criteria for evaluating both the information and its sources.	1.67	Proficient
The information literate student synthesizes main ideas to construct new concepts.	1.68	Proficient
The information literate student compares new knowledge with prior knowledge to determine the value added, contradictions, or other unique characteristics of the information.	1.73	Proficient
The information literate student determines whether the new knowledge has an impact on the individual's value system and takes steps to reconcile differences.	1.59	Proficient
The information literate student validates understanding and interpretation of the information through discourse with other individuals, subject-area experts, and/or practitioners.	1.91	Proficient
The information literate student determines whether the initial query should be revised.	1.65	Proficient
Mean	1.73	Proficient

The table shows that pertaining to the participants' *Skill in Evaluating and Integrating Information*, the college students are *Proficient*, with the cluster mean of 1.7350. Of the eight (8) skill indicators along this IL skill, the highest proficiency mean of 1.91 pointed to the participants' *ability to validate understanding and interpretation of the information through discourse with other individuals, subject-area experts, and/or practitioners*. This reflects that the students have mastered not only information comprehension and interpretation skills but also learned the value of validating what they understood and interpreted against expert opinion, including the appropriate methods in getting the field expertise of people. This is confirmed by the findings of Bartol, Dolnicar, Podgornik, Rodic and Zarnovie (2018) and Batiandila (2006) about students getting a notable performance or a high degree of success in evaluating information and its sources. Moreover, Korobili, Malliari and Christodoulou's (1999) finding of "integrating new information into your existing body of knowledge" getting a relatively high ranking among the skills evaluated by the participants of the study, is another confirmation of this result. Samson (2010) revealed the same about students having satisfactory competencies in terms of evaluating information and its sources critically, and incorporating selected information into their knowledge base and value system. Furthermore, Marvel (2015) was of similar findings about students having done the best job evaluating and integrating information. Also, it is worth mentioning that this finding is consistent with the tertiary faculty and librarians getting the highest mean in terms of their proficiency in teaching this particular skill indicator to students.

Table 5. Level of Assessed Information Literacy Skills of Tertiary Students along Using Information for a Purpose

Skill in Using Information for a Purpose	Mean	QD
The information literate student applies new and prior information to the planning and creation of a particular product or performance.	1.72	Proficient
The information literate student revises the development process for the product or performance.	1.72	Proficient
The information literate student communicates the product or performance effectively to others.	1.74	Proficient
Mean	1.73	Proficient

The table reveals the *Proficiency* of the college students, with the cluster mean of 1.7263, along the *Skill in Using Information for a Purpose*. Findings indicate that the skill indicators garnered nearly the same proficiency means, the

highest of which was 1.74, falling on the participants' *ability to communicate the product or performance effectively to others*. This signifies that the students have mastered the skill of selecting the right communication medium and format through which they can share any information they wish to disseminate, clearly, and with the appropriate audience. Samson (2010) confirms this finding in his report about students' satisfactory competencies along using information effectively to accomplish a specific purpose. Moreover, the supportive atmosphere in educational institutions providing avenues for students to have research proposal and full paper defenses, and the encouragement and guidance they get from teachers in joining oral presentations in appropriate conferences and submitting their paper for research publications make this finding possible among students. This finding is also affirmed by Munshi (2016) whose study revealed the great help provided by innovative tools such as Facebook, Twitter, MySpace, blogs, YouTube, etc., not only as great sources of information to the present society but also as platforms for communicating or disseminating research. In addition, it is noteworthy that tertiary librarians and faculty also have the highest proficiency mean, when asked about their information literacy teaching skill along this skill indicator.

Table 6. Level of Assessed Information Literacy Skills of Tertiary Students along Using Information Legally and Ethically

Skill in Using Information Legally and Ethically	Mean	QD
The information literate student understands many of the ethical, legal and socio-economic issues surrounding information and information technology.	1.66	Proficient
The information literate student follows laws, regulations, institutional policies, and etiquette related to the access and use of information resources.	1.92	Proficient
The information literate student acknowledges the use of information sources in communicating the product or performance.	1.76	Proficient
Cluster Mean	1.78	Proficient

In terms of the *Skill in Using Information Ethically and Legally*, the college students have also been found to be *Proficient*, fetching a cluster mean of 1.78. To be specific, the highest mean along this information literacy skill was on the participants' *ability to follow laws, regulations, institutional policies, and etiquette related to the access and use of information resources*. This means that the participants

achieved an adequate mastery of this skill as shown in their observation of proper behavior online (netiquette), complying with school policies on the use of approved passwords to access information sources along with other legal ways of gathering information, and their understanding of what constitutes plagiarism. In support, the study of Saunders et al. (2015) revealed students not indicating any difficulty in citing sources of information while Saleem. Al-Suqri & Al Kindi (2019) revealed her student-participants having done the best job at knowing how to legally and ethically use information next to evaluating and integrating information. The participants in the study of Samson (2010) were also revealed to have almost excellent competencies along understanding many economic, legal, and social issues surrounding the use of information, and access and use information ethically and legally.

Table 7. Summary of Assessed Information Literacy Skills of Tertiary Students

Information Literacy Skills	Mean	QD
Skill in recognizing information need	1.79	Proficient
Skill in accessing information	1.63	Proficient
Skill in evaluating and integrating information	1.73	Proficient
Skill in using information for a purpose	1.73	Proficient
Skill in using information legally and ethically	1.78	Proficient
Overall Mean	1.73	Proficient

In a nutshell, the table presents the level of the assessed information literacy skills of students in the tertiary as *Proficient* with the overall mean of 1.73. This implies the mastery that students think they have along all the five (5) information literacy skills. The same was revealed in the study of Saleem. Al-Suqri and Al Kindi (2019) where majority of the students had an overwhelming feeling of competence in each of the information literacy skills addressed by her research. Samson (2010) in a similar study likewise revealed majority of students to be getting above average scores in their information literacy skills.

Out of the five (5) IL skills, the college students got the highest *Proficiency* rating of 1.79 along the *Skill in Recognizing Information Need*. This reflects the participants' mastery of the skill in identifying a research topic, formulating questions, key concepts and terms based on information need, and in identifying possible sources of information that can satisfy their information need. Despite having the lowest skill proficiency mean of 1.63, students are still assessed as *Proficient* in their *Skill in Accessing Information* and this can be owed to the abundance of information accessing tools that are of exponential functionalities and capabilities of searching for information.

IV. CONCLUSION AND RECOMMENDATIONS

The study concludes that the level of the assessed information literacy skills of students in the tertiary is *Proficient*. Tertiary students are proficient along the five (5) skills such as Skill in Recognizing Information Need, Skill in Accessing Information, Skill in Evaluating and Integrating Information, Skill in Using Information for a Purpose, and Skill in Using Information Legally and Ethically. The study also comes to the conclusion that information literacy is a life skill and is quite operative machinery for independent and lifelong learning.

Future researchers may come up with similar studies, using the same variables to be conducted in a wider spectrum, such as the entire region or country. This is to determine whether the studies will yield results similar to the findings of the present study and also to reveal the status of information literacy in the region or the nation. This is also to contribute to the dearth of literature on information literacy in the Philippines..

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Javanese Statecraft: SasangkaJati's Perspective

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Abstract— SasangkaJati is considered by the Pangestu community in Indonesia as a holy scripture. It explains the way to attain perfection in life, both spiritually and socially. According to the scripture, the spiritual and social realms are truly inseparable for human beings are created as an integral part of the universe from Divine Being (Suksma Kawekas)'s will. The concept of harmony between macro-cosmos and micro-cosmos is the scripture's fundamental tenet, in which human should always pursue the harmony in every aspect of their life. The scripture also prescribes that the attainment of spiritual perfection can be done through Hasta Sila or eight right paths and by avoiding Paliwara or the five prohibitions. Integral to the concept of prohibition is the existence of the state and the obligation of citizens to comply with state's law. State (community) is acknowledged and positioned as an important platform for human to actualize harmony between them and the universe. The dynamic relations between people and the state, and especially with those who hold power are explained through spiritual and social perspectives. These providential propositions of SasangkaJati characterize Javanese ancient's statecraft, however it also critically represents the timeless principles that govern the relations between human and the state

Keywords— Spirituality, Law, Javanese, Statecraft, SasangkaJati

I. INTRODUCTION

As a nation, Indonesia has a very rich cultural and social diversity which confers Indonesia with a wide spectrum of political life. For almost seventy-six years, it has been successful in maintaining national integrity amid all the political turmoil that resonated from the internal and external dynamics that it encountered. Since its independence, Indonesia successfully managed to quell secessionist rebellions, except for Timor Lestewhere Indonesia had to concede to international pressure by giving referendum in 1999. Despite of such downfall, the country's unity which currently remain intact is the product of a long-time centralistic policy, in which the central government holds tremendous power to control the far-flung region, encompassing almost 17,500 islands, which are inhabited by more than 275 million people. Even though in 1998, Indonesia experienced *reformasior* democratization after the fall of *OrdeBaru* government under the leadership of General Soeharto, the main power of the central government is still in place. Regional autonomy which was the premier concern and demand of the *reformasib* became less appealing when the unprecedented and rapid decentralization of power and competence are abused by incompetent and corrupt officials as well as politicians, this situation necessitated the idea of returning power and control to the central government, some

of its key authority especially in dealing with natural resources extraction. This situation may not be fully reflective about the complexity of Indonesia's political situation. Nevertheless, it is important to understand that the nature of Indonesia's governance and the ability to hold its unity does not only depend solely on the legacy of *OrdeBaru*. As it is the consequences of the most fundamental aspect of Indonesia's existence, resulted from how the Indonesian founding fathers laid the groundwork for Indonesia's independence. During the Investigating Committee for Preparatory Work for Independence (*BPUPK-Badan Penyelidik Usaha-usaha Persiapan Kemerdekaan*) from May 29th 1945- June 1st 1945 and July 10th-17th 1945, Indonesian founding fathers realized that geopolitical reality forced the nation to unite in order to avoid subjugation as had happened to Indonesia for many centuries, especially during the colonization by European powers. Soepomo and Soekarnowas the two prominent figures during the BPUPK meetings whose ideas will be discussed in this paper. Soepomo was a professor at Batavia Law School and Soekarno was Indonesian political leader who then became Indonesia's first President. The idea of a unitary state which preserves national values for unity was proposed during those meetings and it was a very convincing idea. Historically, the idea would become more critical even after the last constitutional amendment.

The national values which were discussed and proposed by Soepomo and Soekarnoduring BPUPK deliberation,were closely associated with Javanese values. It has to be noted that there was no attempt for *Javanization*, for example, proposing Javanese, to be the commanding national language. Javanese values themselves have been internalized in Indonesian Archipelago, as Majapahit, the Javanese Empire, was the only predecessor of a native entity that ruled over almost modern days territory of Indonesia. During the Soeharto presidency for more than three decades, Javanese values became more pervasive, as he tried to emulate the values into policymaking. He mentioned one of important studies about Javanese philosophy from a scripture called *SasangkaJati*, which means The Absolute Knowledge.Particular study aboutthe scripture states that it completely represents the richness of Javanese concept of life. Hence, these Javanese values become integral part of Indonesia's cultural constitution.

The scripture explains that the origin of its teaching is the Eternal Guidance of every human being, who is also the one and only God's Messenger (*SuksmaSejati* or *Sang Guru Sejati*). For a spiritual group in Java, which is called *Pangestu(PaguyubanNgesti Tunggal)*, the scripture is believed to be a holy scripture, just as the Holy Bible for the Christians and Holy Qur'an for the Muslims. For them *SasangkaJati* is a Divine Revelation to SoenartoMertowardojo (1899-1965) starting from 1932 to 1933. After *SasangkaJati* was completely revealed, Mertowardojo still experienced revelations, so his personal words and deeds became sacred lessons for *Pangestu's* followers.Even though the followers of *Pangestu*are relatively very minor in comparison to Indonesia's population, its teaching is very influential in Indonesia, especially among policy makers and intellectuals. This is the main reason why understanding *SasangkaJati*would give important insights on how Indonesia might be well governed.

According to *SuksmaSejati*, there are four main messages brought by *SasangkaJati*for human kind: (1) showing the right path, the path leading to the Divine Truth, or the Abode of the True Lord; (2) showing the deviated path, the path leading to the world of evil; (3) showing the Lord's law; (4) showing the consequences or results of action.*SasangkaJati* also generates fundamental concepts regarding human and society, especially about the state. According to *SasangkaJati*, the power of the state which is exercised by powerholder such as king or any of the kind comes from the God (*SuksmaKawekas*). This paper will focus on how *SasangkaJati* opines about power and the state. This paper argues that understanding *SasangkaJati's* concept on power and the state would give us tremendous understanding about

the concept of statecraft as understood by Indonesians culturally.

II. RESEARCH METHODS

In this paper, the data is obtained from (i) literature sources such as *SasangkaJati*, (ii) journal articles that shared related topics and (iii) theoretical books. It uses only qualitative approach. It also uses historical approach. The paper would explain how statecraft is exercised from Indonesia's history by exploring Javanese statecraft and *Pancasila's* theory, and it position put*SasangkaJati*as the framework to comprehend the concept that underlies and constitutes Indonesia's statecraft.

III. THEORETICAL CONCEPTS

This paper argues that to understand the constitution of a country, one should begin by understanding that country's history. This argument has several theoretical backgrounds such as the historical school of thought of Carl von Savigny and Gagik Harutyunyan'stheory of constitutional culture. According to Savigny, the law of a country cannot be externally imposed or forced uponit, because it should grow within and from the history of the people. Savigny's opinion was the result of his opposition against Napoleon's law being imposed upon Europe in 19th century. While Harutyunyan explained his opinion at the end of 20th, as his opposition against any forced constitution, especially because of colonialism and communist domination.He believed that constitution shall reflect nationalconsciousness which is the result of the nation's historical process. He openly opposed unreasonable constitutional transplantation, because if there is contradicting values, it will damage the legal system of the state.

As indicated earlier, this paper would discuss important ideas and statements given by Soepomo andSoekarno during the BPUPK meetings. Soepomoargued that there are two important concepts about Javanese way of statecraft which are *ManunggalingKawuloGusti* and micro-macrocosmos relationship (*JagatAgeng-JagatAlit*).Soekarno when explaining the foundational philosophical theory of Indonesia which he named it as *Pancasila*, was the result of his long observationabout the nation's living law. Then he concluded that the main message of *Pancasila* is *gotongrojongor* working together. This paper argues that these propositionsoffer important clues for understanding modern statecraft in Indonesia.

In his explanation about Indonesia's legal system, AgusBrotosusilooines that Indonesia's source of law, which is *Pancasila*, represents*Nusantara's* or Indonesia's native law which is*adat*, also known as customary law. According to

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Brotosusilo, *Pancasila* brings harmonious relationship in society not only among Indonesian people but also with the international community as well as the Creator (God). The relationship can be seen from the harmonious principles among intertwined antinomies values which are in accordance with Indonesia's culture.

He then elaborated each of the *Pancasila's* principles with his arguments. The first principle, which is Belief in the One and Only God, is about harmonious relationship between the Creator and the Creations. Second principle which is Just and Civilized Humanity is about harmony in interpersonal relationships, inter-group relationships and relationships between the individual and the group. In this particular explanation about humanity harmony, he used Javanese values of logic (*sabeneru*), ethics (*sacukupe*) and aesthetic (*saperlune*). The third principle is about harmony between the existence of diversity and the need for unity. Indonesia's history proves that without unity the nation would become vulnerable to subjugation. The fourth principle, which is democracy guided by the inner wisdom in the unanimity arising out of deliberations amongst representatives, represents the aspect of harmony in a vertical-horizontal relationship or between the rulers and the citizens. He also explains that Indonesia's democracy is not always about the majority controls the country but finding harmonious relationship. The final principle which is the social justice for all of the people of Indonesia, represents the harmonious relationship between physical and spiritual sphere. Furthermore, Brotosusilo summarized the three critical values that represent the main values of Nusantara's community as reflected in *Pancasila*, that are Indonesia values more spiritualism than materialism, communalism than individualism, and romanticism than rationalism.

Soemarsaid Moertono in his important work, 'State and Statecraft in Old Java', wrote that according to Javanese belief and thought, human must have a harmonious relationship not only between micro-cosmos and macro-cosmos but also with himself. This relationship is based on the Javanese understanding on how the universe is going in order. If the order is broken, it would leave the world in chaos. Therefore, it is important for every person to know his place not only in the universe but also in the society. According to the Javanese belief the state has two important duties, (1) to encourage psychological order (*tentrem*) and (2) to enforce physical or formal order (*tata*). Because only by delivering the two duties, the state will maintain a harmonious relationship of the society. In practice, Javanese people believes the importance of policy which includes spiritual as well as physical activity for achieving harmony. In this sense the state represents the

image of Great Cosmic Order. Thus, the duty of the power holder is more that of a protector than a developer.

Moertono then explained the concept of *manunggaling or djumbuhingkawulaGusti*, the unity of servants with the God. As the world order is originated from God, then for human to find his/her harmony in life he/she should maintain a close relationship with the Creator, by performing *Semedi*. *Semedi* is seen as means of bridging the gap between the unfathomable depths of God's knowledge and narrowness of human understanding. Because for Javanese there is certain essential qualities which are common between God and human. It doesn't make human and God equal but it allows human to contact God personally and finally merge with Him. This concept is also used to explain the relationship between the ruler and the citizens. While the king must be as close as he can with the people but both have different function in social relationship as predestined by Divine Law.

As mentioned above, *SasangkaJati* is a native holy scripture which has Javanese root. It consists of seven books, *Hasta Sila*, *Paliwara*, *GumelaringDumadi*, *Tunggal Sabda*, *JalanRahayu*, *SangkanParanand Panembah*. It explains that all human activities shall be directed into worshipping *SuksmaKawekas* (The only God). It also says that there is special relationship between *SuksmaKawekas* and human, because the origin of *RohSuci* (human soul) is *SuksmaKawekas*, thus in order to find eternal peace human must find God in his heart and in his life so in the afterlife he can reach *alamsejati* or 'heaven'.¹ However, *SuksmaKawekas* has unlimited and unfathomable power, where human can only in touch with *SuksmaKawekas* through *SuksmaSejati* or the eternal messenger of *SuksmaKawekas*. The relationship between the three is called *Tripurusa* or the One condition in three personalities. *SuksmaSejati* has central role in human life as the True Guidance or The True *Guru* (*Sang Guru Sejati*). The existence of *Tripurusais* is indescribable, and it is forbidden to worship something visible whether it is material or spiritual, as *SuksmaKawekas* the true Lord has no direction, no space, no feature, and no color.

SasangkaJati says that even though human soul has special relationship with God (*Tripurusa*), as long as human still lives as material being in the world, he is not the Lord (*SuksmaKawekas*) nor the Messenger (*SuksmaSejati*), but he is a servant (*hamba*). As a servant he must worship the Lord, and follows obediently the direction of *SuksmaSejati*. To be able to follow *SuksmaSejati*, human must perform eight kinds of worship of the heart or known as *Hasta Sila*. *Hasta Sila* is divided into *Trisila* and *Pancasila*. *Trisila* consists of Consciousness, Faith (Belief), and Obedience, while *Pancasila* consists of Un-attachment, Acceptability, Honesty,

¹Ibid, 131-132.

Patience and High Virtue. Without performing *Hasta Sila*, it is impossible for human being to be guided by *Suksma Sejati* to reach *Alam Sejati* for unification (*manunggal*) with *Suksma Kawekas*, the Lord, the Source of Eternal Peace. *Sasangka Jati* explains about the existence of micro-cosmos (*jagat alit*) which represents human being, while macro-cosmos (*jagat ageng*) represents the universe. *Sasangka Jati* says if human being cannot attain harmonious life, it will bring destruction to the harmony of macro cosmos. As micro-cosmos and macro-cosmos are influencing each other, hence it is important to bring harmony in life. Furthermore, *Sasangka Jati* explains about the three kinds of moral responsibility of the society: (1) the moral responsibility of the superiors towards the subordinates, means protecting by applying just rules and regulations; (2) the moral responsibility of the subordinates towards their superiors, they should obey and be loyal to the superiors; (3) The moral responsibility of humanity which means helping each other or mutually taking care of the burdens of life by applying mutual respect.

Sasangka Jati's views on statecraft is well documented in the chapter IV, that is the book of prohibition (*Paliwara*) which says "obey the laws and the regulations of your country," which then is reiterated in the book of The Origin and Destination (*Sangkan Paran*). It explains that the authority of the state which is held by the leadership of the country from the highest rank such as the King or Queen to the lowest rank, is mandated by God. Since the leadership of the state represents God on earth, it is important for the citizen to obey the leadership. Even though the leadership might not be aware that he has the mandate from God to rule the state, but spiritually he understands that his mandate attaches responsibility to rule justly. If the leadership does not perform the duty responsibly as mandated by God, it is not the authority of the people to give punishment, instead it is the God himself that would punish the leadership. *Sasangka Jati* reminds humans that either the leadership or the citizens shall not be blinded by passion which would bring them away from performing their essential duties in society. This particular blindness would incur punishment of the Lord that could manifest in the form of a chaotic state. Hence, human shall not forget each of their duties to the Lord and society. In explaining about one's duty to society, *Sasangka Jati* highlights the importance of performing worldly duties as supporting factor for spiritual duties. As *Sasangka Jati* states that if man's knowledge is only limited to material things hence his faith would be astray.

Pangestu as an organization has ten principles which are: (1) devotion to the Lord; (2) devotion to the God's Messenger; (3) being loyal to the nation's leadership, (4) devotion to the

country; (5) devotion to the parents, (6) devotion to the elder siblings; (7) devotion to the teachers; (8) devotion to the virtue teaching; (9) being affectionate to every creature and (10) respecting all religions. In one of his teaching, Mertowardjo highlighted that the ninth principle is the most important principle. Mertowardjo's highlight is in line with what is written in *Sasangka Jati*, about the direction for being affectionate to every creature (*ambabarakesihkatresnanemarangsapadhaningtitah* and *welasasihmarangsapadhaningtitah*).

IV. ANALYSIS

After exploring *Sasangka Jati's* message, this paper would explore, how its values are compatible with the three important features of *adat* law as being outlined by Brotosusilo. *Sasangka Jati* mentions that the ability of a leadership to perform its duties in society comes as a result of spiritual contract with the Lord even though he does not recognize it, and how the harmonious relationship in society would bring the Lord's blessing for the state's security and welfare. Furthermore, *Sasangka Jati* outlines the importance of spiritual duties over the material ones, and how only believing in material world alone without having faith in spiritual realms would bring one's soul into astray. These important values of *Sasangka Jati* affirms its compatibility with the important features of *adat* law. Even though *Sasangka Jati* acknowledges any individual interests, it highlights the importance of performing duties in society, especially in explaining *budidarma* and *budiluhur*. *Budi darma* is the instruction to help others according to one's ability and the demand of the needed. While *budiluhur* is even demanding, as one should give his life if the world or society needs such sacrifice for overcoming challenges. This trait reinforces the importance of communalism over individualism. The last trait in which romanticism is more important than rationalism, is well summarized in the final message of *Sasangka Jati* in book *Panembah*. It is said that the matter of belief is not in the realm of rationalism (*angen-angen*) but it is in the realm of the soul, and every soul has its own independence whether to accept *Sasangka Jati's* message or reject it, as only God Almighty who decides what is wrong and what is right. *Sasangka Jati* does not reject the importance of rationalism, as it helps human to govern his passions, but it is not enough to bring salvation for human beings.

Brotosusilo also expounds that *Pancasila's* root is coming from *adat* law, and he explains that the main message of *Pancasila* is finding harmonious relationship in society. Therefore, the paper concludes that all the message of

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SasangkaJati in its relation with society is about seeking harmonious relationship. It is already mentioned previously about *SasangkaJati*'s three kinds of moral responsibility in society, in which every part of society shall play their role harmoniously to ensure Divine's blessing and protection. Hence *SasangkaJati* is also compatible to *Pancasila*, as said by Soekarno, which in its totality *Pancasila* means working together or helping each other (*gotong royong*).

In relation to *adat* law and Indonesia's statecraft, the paper has already mentioned how, during the process to attain Indonesia's independence, Soepomo reminded the important concept of *Manunggaling Kawulo Gusti* or *the Unity of the servants with the God* and the harmony relationship between micro-cosmos and macro cosmos for designing statecraft in Indonesia. Even though Soepomo's idea was not fully accepted by the committee, but his involvement in formulating the design of Indonesia's early phase constitution would ensure that Javanese statecraft are well preserved in Indonesia's political culture. Moertono had put some light to Soepomo's idea in BPUPK discussion, as he explores how Javanese see power as the extension of God's authority in the world, and the relation between the ruler and the citizens can be understood through this lens of power relations. Human beings as the servants of God, shall maintain the harmonious relationship within nature (*tatatentrem*).

For the particular concept of *Manunggaling Kawulo Gusti*, as previously discussed, *SasangkaJati* mentions about the concept of human relations with God and the Messenger, in which even though human's soul belongs to God's Existence (*Tripurusa*), as long as he is in this world, he is still servants, who must worship and obey God's command through *Suksma Sejati*. In relation with society, that is the concept of power relations between the state's ruler and citizens, *SasangkaJati* explains that the ruler brings God's authority, but it does not mean the ruler can be a tyrant. Because if the ruler does not perform his duty justly, Divine Law will punish him for his action. As mentioned earlier in the three kinds of moral responsibility in society, it can be understood that harmonious vertical and horizontal power relationship is essential for the survival of the state. With this understanding, *SasangkaJati* explains that harmonious power relationship in society will bring Lord's blessing. *SasangkaJati*'s perspective on statecraft embodies the structure of Indonesia's ancient regime, as it uses many terms such as *raja*, *ratu*, *patih* and so forth, hence it shows that its concept is as old as Indonesian civilization itself.

In relation to the second important concept of *jagat ageng* and *jagat alit* (macro and micro cosmos), *SasangkaJati* highlights that both are connected and influencing each other. As explained in book *Sangkan Paran* and *Panembah* that each

individual and communal spiritual order would bring natural order. Because individual and communal spiritual order would bring the protection of the Lord through the nature in which humanity lives. It is also important to note that *SasangkaJati* is not only focus on humanity, but also into ecological issues. Because *SasangkaJati* underlines the importance for preserving life not only for human being but also every creature. The current western-driven human civilization has proved to put the nature and eventually humanity in jeopardy. Hence this is an appropriate opportunity for scholars in particular and society in general to question whether the 'rational' approach to preserve our existence is superior than spiritual approach as being reminded by *SasangkaJati*.

On September 2019, at the expert testimony hearing of Indonesia's Constitutional Court, *SasangkaJati*'s concept of harmonious relationship was introduced as explanation to Soepomo's Indonesia statecraft idea. The notion was well discussed among the nine constitutional judges, who were representing 270 million of Indonesia citizens. That moment and Suharto's explanation on *Pancasila* by using particular concept from *SasangkaJati* in June 1982 have positioned *SasangkaJati* as an important source for understanding the indigenous concept of Indonesia's statecraft.

V. CONCLUSION

SasangkaJati is the embodiment of Indonesian native law as it has all the essential characteristic of *adat* law. It also has compatible values with *Pancasila* for it focuses in finding harmonious relationship in the society not only among human but also with nature. *SasangkaJati* explains about how humanity should find order and peace (*tatatentrem*) with himself and the world around him, through spiritual journey which automatically would ensure material sufficiency. It also reminds us that our rational vanity might not be able to preserve our existence as our civilization has brought us into the brink of irreversible natural destruction.

SasangkaJati provides excellent explanation about Javanese concept of power and statecraft, which is the prevalent values in Indonesia's national life, thus it will help law makers and constitutional judges to understand how *Pancasila* really works in Indonesia. It is also full of wisdom and beneficial for giving different perspectives in the midst of current western-driven global capitalist civilization.

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Abstract— As the coronavirus (COVID-19) pandemic continues to spread globally, the stock market demonstrate that coronavirus has led to the instable economy; disrupted supply chains, unemployment, lack of financial liquidity, and temporarily stop business. Therefore, in order to prepare after going post the Covid-19 Pandemic which the entrepreneurs need to transform the corporate management strategy. The aim of the study is to develop a structural equation model of transforming corporate management strategies of the cosmetic manufacturer section in the post covid-19 pandemic. Methodology: The research utilizes a mix research method; qualitative method uses inadapt-interview with 9 key informants to develop the research instrument (questionnaire), quantitative method was generated from survey of 500 top managements of cosmetic manufacturing. Data were analyzed by the structural equation model (SEM) that use IBM SPSS AMOS version 24. After the conceptual model was developed, many assumptions were associated with it, and the software was run on the data set to validate the proposed theoretical model. The findings fitted perfect with empirical data. The guidelines for transforming corporate management strategies of the cosmetic manufacturer section in the post covid-19 pandemic four constructs (1. Transformation mindset, 2. Operation execution, 3. Partnership, and 4. Alternative Marketing). The model met the criteria of all goodness of fit indices; P-value is 0.87, CMIN/DF is 1.162, GFI is 0.965 and RMSEA is 0.018. Therefore, in order to continue the business that necessary to change the management strategy by combining the factors derived from the study for a guideline for management after covid-19 pandemic crisis

Keywords— SEM, Transforming Corporate Management Strategies, Cosmetic Manufacturer, Covid-19 Pandemic

I. INTRODUCTION

The great crisis of coronavirus 2019 (COVID-19) pandemic has stretched almost every country in the world. Its spread, since the first until third wave has left national economies and businesses counting the costs, as governments struggle with new lockdown measures to tackle the spread of the virus. COVID-19 is not only a global pandemic and public health crisis; it has also severely affected the global economy and stock markets. Significant reductions in Gross domestic product (GDP), a rise in unemployment of the production, service sector (such as tourism, hospitality, the international

airline, and restaurant) and SMEs enterprise, and disruptions in the transportation are among the consequences of the disease mitigation measures that have been implemented in many countries. It has become clear that most governments in the world underestimated the risks of rapid COVID-19 spread and were mostly reactive in their crisis response. As disease outbreaks are not likely to disappear in the near future, proactive international actions are required to not only save lives but also protect economic system prosperity. [7][14][23] As in many industries, manufacturers are increasingly mindful that even when the pandemic ends, it will leave infrastructure changes in its wake, such as greater automation and a focus on smaller, more local factories. With this transformation comes

opportunity. The global personal care & cosmetics manufacturing industry that can be classified into skincare, haircare, fragrances & perfumes, and other cosmetics, has experienced a downfall in sales during the COVID-19 outbreak due to the closing of offline stores at various locations across the globe.

Many countries still being in the lockdown mode across the globe, personal care & cosmetics manufacturers have had to shut down their production units due to labor shortage, and reduced demand, with finding markets where goods can be exported to, becoming hard. The cosmetics sector has been strongly affected by this paradigm shift, especially because consumers' demand for products with a low environmental impact and organic certifications that guarantee the reliability of the formulations. The global skin care, color cosmetics, hair care, fragrances, and personal care industry has been shocked by the COVID-19 crisis. First-quarter sales have been weak, and there have been extensive store closures. The industry has responded positively to the crisis, with brands switching their manufacturing to produce hand sanitizers and cleaning agents and offering free beauty services for frontline response workers. At the same time, the industry's leaders have a responsibility to do their best to ensure that their companies survive. The global beauty industry generates \$500 billion in sales a year and accounts for millions of jobs, directly and indirectly. Live come first, but livelihoods also matter [11]. The Thai cosmetic industry in 2020 has affected form COVID-19 pandemic; 1) the luxury brand, in the past, the beauty market in the luxury segment came from foreign tourists who traveled to Thailand and sales volume in department stores through brand counters. The fact that tourists cannot travel to Thailand. During COVID-19 outbreak in Thailand the mall has been closed. Moreover, the behavior of distance social affected to the beauty market in the luxury segment was -41% compared to the previous year. 2) Make up product is another segment that is equally affected. It is expected that the makeup market will be 58% negative due to wearing masks. It makes people less makeup. Especially the lips. [17]

II. LITERATURE REVIEW

The literature review is organized by the following topics: 1) Transformation mindset, 2) Operation execution, 3) Partnership and 4) Alternative Marketing

1. Transformation mindset

The implementation of an appropriate talent mindset architecture is determined by whether the organization and the individual share a talent mentality. Talent as a construct grew from personnel management, to human resources

management, to human capital, and ultimately, to the new field of talent management [18]. This mentality called mindset talent by Mckinsey and Associates is a key to the implementation strategy and organizational success. Indeed, the main barriers to the realization of a talent mindset strategy are all human, wrapped up in what Guthridge and Komm[13] refer to as 'mind habits'. Also, as expressed by Nilson and Ellström[20], talent mindset is regarded as a mindset that is associated with ensuring that all employees competence to the best of their potential [4][25] which arising from the achievement of the good person-organization fit [19].

A great deal of research has been devoted over the past decade to detect the outcomes of talent management for both the individual and the organization. The talent management significantly increases positive work-related outcomes of individuals such as: motivation, work engagement, employee competency, job satisfaction, productive organizational energy and service quality delivery [2][15].

2. Operation Executions

Operation execution systems ensure that all facets of the operation — materials, people, processes, and equipment — act in concert, securely, and in compliance with industry, customer, and product specifications. Furthermore, they track the transformation of products from raw materials to finished goods, follow up the production according to quality specifications, and gather information on resources and asset utilization. This assures that operators, supervisors, managers, and other decision makers have timely information to effectively manage the order flow and take corrective actions to keep quality and performance under control. Greveling and Bushoff[12] have explained about the operational implementation basically follows the following steps, in accordance with the popular P (Planning) D (Do) C (Check) A (Act) cycle or Deming's circle: Plan refers to what and why; Do refers to performing an experiment and testing; Check refers to analysis, reflection and introspection; Act refers to implementation and corrective action.

3. Partnership

The partnership as same as the collaborations is network theory. Cooperation for innovation is increasingly seen as a means for lowering development costs, accelerating product development, and maximizing commercialization opportunities in innovation projects. The capability of building and maintaining inter-organizational networks, such as joint ventures, license agreements, (supplier-customer) co-development and strategic alliances has led to increased number of product and process innovations[21]. The availability of technological opportunities in the region a company operates might determine the partnership decisions

of firms as well as the innovation outcome [22]. Firms might form both formal and informal relationships with local organizations to speed up their technological development. The recognition of the paramount importance of networks for innovation management leads to the concept of open innovation systems, which are characterized by a flexible way of firms to coordinate a large number of innovation projects and to assess their value [51]. Geographical proximity is of particular interest in network theory due to its goal of understanding and measuring the role of informal relationships in innovation generation. The learning dynamics of these formal and informal network relationships widely affect the performance of partnerships [24].

4. Alternative Marketing

There was noted that the situation of COVID resulted in consumers having Brand Loyalty. Although COVID-19 caused consumers to slow down their spending due to lower revenues. But there are also groups of consumers who can still spend their happiness. Which originally, when choosing to buy things offline in the mall Having to walk around, making the selection and purchasing can be limited, but during the lock-down period, consumers are left with only one channel - online shopping where all brands can click on products at their fingertips. It is easy for consumers. So, the corporates have to shift the normal marketing to the new normal marketing strategy.

Responsive strategy in the COVID-19 crisis. In terms of the external environment factor, when the company are greatly affected by the COVID-19 crisis, such as firms whose offline businesses take a large percentage, this strategy can be used by innovating the existing business to alleviate the great impact of the crisis [8]. With regard to internal advantages, since this marketing innovation strategy relies on the firm's own resources and capabilities, it is suitable for a company with relatively lower dependence on external resources [9] and stronger reconfiguration capabilities, which refers to upgrading and optimizing existing business through the transformation and reconfiguration of resources within the organization [3][16]. Firms that choose this strategy are mainly those whose businesses are based on offline physical interpersonal contact and that are able to independently integrate and reconfigure their offline resources and conduct marketing innovation by transferring the original marketing channels of their existing business to E-commerce. This transfer provides the opportunity to maintain the normal operation of the existing business while responding successfully to the rapidly changing purchasing patterns of customers during the COVID-19 crisis.

III. RESEARCH OBJECTIVE

The purpose of this study was to eliminate many of the problems of correlational and ordinary least squares analysis by using structural equation modelling (SEM) to systematically identify plausible evaluation factors and further test the major relationships between variable

IV. RESEARCH METHODOLOGY

The sample in this research was comprised of 762 cosmetic factories registered with The Department of Business Development, Ministry of Commerce with the sample size in the factor analysis study, the range was 500 samplings [6].

Validity and reliability of the research instrument. The initial stage entailed the evaluation of the index of item objective congruence (IOC) by 5 expatriates. The results indicated that all questions exceeded the value of 0.5, meaning that the IOC was passed. The subsequent stage checked using the Cronbach's Alpha method, the score being 0.95 which greater than 0.80, this may be considered a better score [10].

The sample was collecting by questionnaire which use descriptive statistics data were analyzed using the SPSS program while a multivariate statistical analysis was done using the AMOS program. The four-evaluating metrics of data-model fit of Arbuckle were 1) chi-square probability level greater than 0.05; 2) relative chi-square value less than 2; 3) goodness-of-fit-index of more than 0.90; and 4) root mean square error of approximation lower than 0.08 [1].

V. RESEARCH FINDING

The measurement model has provided the acceptable fit statistics (P-value = 0.87, CMIN/DF = 1.162, GFI = 0.965 and RMSEA = 0.018). Validity and reliability analysis related with the measurement model are demonstrated in Figure 1 and Table 1.

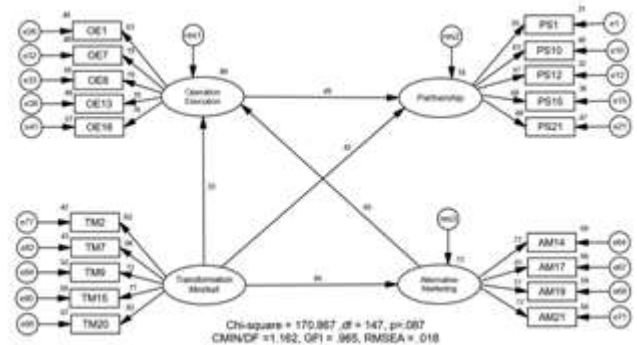


Figure 1. Structural Model

Table 1. Item measurement properties

Variable	Estimate Standard	R ²	C.R.
Transformation Mindset			
Alternative Marketing	0.85	0.72	13.14
Operation Execution	0.33	0.89	4.16
Partnership	0.42	0.78	3.55
Alternative Marketing		0.72	
Operation Execution	0.65	0.89	7.53
Operation Execution		0.89	
Partnership	0.49	0.78	4.05
Transformation Mindset			
TM2 Understand the crisis deeply	0.82	0.42	
TM20 Accept with “Not thing absolutely perfect”	0.65	0.67	15.24
TM15 Avoid a negative wording	0.66	0.59	14.62
TM9 Seeking the good practice	0.72	0.52	13.78
TM7 Support yourself, Colleague up, and Managing director	0.77	0.43	12.80
Operation Execution		0.89	
OE1 Setting zero stock policy	0.70	0.40	
OE8 JIT purchasing	0.63	0.50	13.27
OE7 Integrated raw material for multi-formular	0.70	0.48	13.17
OE13 Always preventive machine	0.70	0.49	13.37
OE16 Upskill employee	0.76	0.57	14.05
Alternative Marketing		0.72	
AM14 Expedite distribution channels to suit the business	0.77	0.59	
AM17 Invest in channels that reach specific groups of customers	0.81	0.66	18.68
AM19 Analyze the customer journey	0.77	0.59	17.68
AM21 Never stop building brandawareness	0.77	0.60	17.80
Partnership		0.78	
PS1 Inform the real problem to stakeholder	0.56	0.31	
PS10 Co-purchasing the material	0.63	0.40	10.36
PS12 Negotiate to supplier about credit term or temporary payment	0.57	0.32	9.73
PS15 Request to reduce interest on loans with financial institutions	0.60	0.36	10.09
PS21 Bartering with customer and supplier	0.68	0.47	10.82

Table.2 The standard total effect

	Alternative Marketing	Operation Execution	Partnership
Alternative Marketing	.848	.000	.000
Operation Execution	.881	.648	.000
Partnership	.853	.317	.490

Table 2 show that the result of the total effect analysis of The Structural Equation Model of Guidelines for Transforming Corporate Management Strategies of the Cosmetic Manufacturer Section in the Post Covid-19 Pandemic in Standardized Estimate mode after adjusted model. The highest total effect value is Transformation Mindset has affected to Operation Execution (Standardized Regression Weight = 0.881)

VI. DISCUSSION

Thai cosmetic Manufacturers are going to operate differently and employees will need to learn new processes in order to adapt to the new normal. A flawless startup is necessary and a sustained focus is critical for keeping the plant open and averting a shutdown. OSHA has offered clear guidelines on preparing a workplace for COVID-19 which can offer the operational procedures companies should implement to reduce the risk of exposure to employees including workplace controls to implement and guidance on developing an infectious disease preparedness and response plan.

1. The company should reorganization or restructuring: cost reduction drove streamlining activities at many companies. Divestitures allowed companies to better focus resources on key growth markets while acquisitions were held to make cost savings targets stringent which conform with Ritter & Gemunden[21] who describe about the capability of building and maintaining inter-organizational networks, such as joint ventures, license agreements, (supplier-customer) co-development and strategic alliances has led to increased number of product and process innovations.

2. Competitive positioning: product and service quality are gaining importance as manufacturers hold onto market share. Outcome-based pricing models are being offered more frequently. Acquisitions and joint ventures are enabling companies to bring differentiated products and services to market more quickly.

3. Marketing strategies, customer acquisition and connectivity: manufacturers are prepared to invest in understanding their customers better. Sales teams are being expanded in growth markets, enabled by new technologies which conform with Gandia and Gardet[9], they said about marketing innovation strategy relies on the firm's own resources and capabilities, it is suitable for a company with relatively lower dependence on external resources

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Readiness of University Stakeholders on Flexible Learning in the New Normal

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Abstract— *The Corona Virus Disease (COVID) – 19 brought drastic changes in the operations of schools and universities around the world. In the Philippines, schools and universities need to suspend the face-to-face learning modality to help reduce the transmission of the deadly virus. With this, higher educational institutions (HEI) implemented flexible learning in order to continue cater to the needs of all learners. Flexible learning involves a shift from a traditional teacher-centered approach to learning into a more student-centered and technology-based approach through the shifting into flexible modalities such as online learning and modular learning. This descriptive study was conducted to determine the readiness of university stakeholders towards the implementation of flexible learning. An online survey was conducted among students, parents and faculty members of a Higher Education Institution in Northern Philippines. Results revealed that university stakeholders are in favor of the use of flexible learning as the main learning modality in the midst of the pandemic. The students and faculty members were also found to possess the basic tools that are needed for the adoption of flexible learning in the university. These tools include available devices or gadgets that have internet connectivity, available learning areas at home for flexible learning activities, basic ICT skills, and previous experience with online learning. Moreover, parents have shown support for the use of flexible learning which is crucial in ensuring success of any educational endeavor. However, certain issues must also be addressed in order to ensure the success of flexible learning implementation by the university*

Keywords— *Flexible Learning, Higher Education, COVID-19 Pandemic, New Normal Education*

I. INTRODUCTION

The advancements in technology and internet access and the adoption of 21st century learning principles have pushed educators to utilize other means of content delivery or instruction (Onyema&Daniil, 2017; Binkley, et. al., 2012); hence, the adoption of flexible learning modalities by Higher Education Institutions. There are varying definitions of flexible learning. Some common terms that are associated with it includes distance learning, online or e-learning and blended learning. Flexible learning refers to pedagogical approaches that allow flexibility in terms of how, when and where learning occurs and is aimed at increasing access to higher education (Vijapur, et. al., 2021; Vlaschopoulos&Makri, 2019; Medina, 2018). The flexibility described in this context may either be in terms of pedagogy; i.e., in terms of the implementation of teaching-learning, assessment, interaction and media of instruction; or flexibility in terms of logistics; i.e., in terms of the location, time and

pace of learning (Huang, et. al., 2020). Moreover, it may include the use of a variety of technologies that do not limit learning to the traditional face-to-face set up (Rapanta, et. al., 2020). Online and blended learning are the most common approaches or forms of flexible learning; and these describe primarily how learning content is delivered to students (Castro, 2019; Boelens, Voet& De Wever, 2018). Online learning therefore involves delivery of learning content, which allows students to gain new knowledge and skills through the use of an online delivery system or an application which requires internet access (Aghajani&Adloo, 2018; O’Doherty, et. al., 2018). Online learning can either be synchronous or asynchronous. Synchronous online learning involves the production and consumption of learning materials by students at the same time while in asynchronous learning, students are provided with learning materials that can be accessed at any time (Madathil, et. al., 2017). Blended learning, on the other hand, consists of both online learning and face-to-face components wherein students and teachers meet occasionally (Zhou & Chua, 2016).

Flexible learning involves a shift from a traditional teacher-centered approach to learning into a more student-centered and technology-based approach (Kieran & Anderson, 2019). Learners are more autonomous and are given more control and responsibility over their learning. This allows the learner to follow his/her own pace making learning more personalized (Byrd, 2017)). This also encourages learners to be more engaged in the teaching-learning process (Ichim, Dan & Sava, 2017). One of the most important benefits of flexible learning is that it makes education more accessible to learners (Veltsianos&Houlden, 2019; Valtonen, et. al., 2020). This may be employed in circumstances where traditional face-to-face learning is not possible or is limited. Moreover, flexible learning has also been found to promote quality of education received by students (Jackson, 2019; Benade, 2019); and it increases teachers' self-efficacy and competence (Chawinga&Zozie, 2016).

Although flexible learning was proven to be beneficial, there are factors that can challenge its outcomes. Readiness of faculty members and students in the adoption of technology-based education is a strong determinant of the success of flexible learning (Kin, Hong & Song, 2019; Shen& Ho, 2020). James-Springer (2016) described different types of readiness in line with technology-based education which are technological, economic and human readiness. Technological readiness refers to the availability of technological systems such as internet connectivity and devices and the capability to use such which is applicable for both learner and teacher (Bayaga, et. al., 2021). Economic readiness pertains to the availability of ICT infrastructure and institutional support for the adoption of technology-based education (Harerimana&Mtshali, 2018). Human readiness refers to the knowledge, skills or competencies and attitudes of the learner and teacher relevant to the use of technology-based education (Blayone, 2018). Faculty members' and students' acceptance, understanding of the benefits and perceived need for technology-based education are also important in ensuring readiness and successful implementation (Elliston, 2020). Readiness of all forms has been found to be positively correlated with successful adoption and outcomes of technology-based education (Geng, Law, &Niu, 2019; Al-Furaih& Al-Awidi, 2020; Kim, Hong, & Song, 2019). Readiness was also found to improve students' interaction and engagement in the online learning environment (Lasfeto, 2019). Better interaction and engagement ensure successful outcomes in the online learning environment. It is therefore crucial to assess readiness for the use of flexible learning to ensure its successful implementation.

In the midst of the current health situation around the world

brought about by the 2019 novel Corona Virus (COVID-19) where access to the traditional face-to-face teaching and learning poses a great risk on health and safety of learners and teachers, educational institutions are finding alternative means of lesson delivery that will ensure quality education without compromising the safety of both students and faculty members. University of Saint Louis, a Catholic Private Higher Education Institution in the Philippines, with its commitment to quality education and in consideration of the safety of its stakeholders is exploring the feasibility of implementing flexible learning modalities for the incoming school year (2020-2021) in all academic levels. To guide decision making relevant to the formulation of policies about the implementation of flexible learning by the university, this study was conducted to assess students', parents' and faculty members' perceptions and readiness regarding the use of flexible learning

II. METHODS

The study made use of a descriptive survey method. An online survey was conducted among students, parents and faculty members of the different departments: Elementary, Junior High School, Senior High School, College Departments and Graduate School. Three sets of questionnaires were prepared to measure students', parents' and faculty members' perceptions and readiness regarding the implementation of Flexible Learning in the university for the incoming academic year 2020-2021. The questionnaires consisted of 7 items for the faculty survey, 11 items for the students' survey and 9 items for the parents' survey. The questionnaires were validated by the University Research and Development staff and the members of the University Extended Advisory Board (EAB). Descriptive statistics such as frequency counts and percentage were utilized to analyze the data.

III. RESULTS AND DISCUSSION

Table 1. Perception of the University Stakeholders on the Adoption of Flexible Learning

Perception on the Adoption of Flexible Learning	Percentage of Responses		
	Students	Teachers	Parents
In favor of the Adoption of Flexible Learning	17.29	80.51	89.89
Not In favor of the Adoption of Flexible Learning	46.26	19.49	19.11
Not Sure	36.45	.00	.00
Total	100.00	100.00	100.00

The table shows that majority of the parents (80.89%) and teachers (80.51%) are in favor of adopting flexible learning as

mode of instruction for the incoming academic year. This could mean that parents and teachers agreed to continue education through the implementation of flexible learning modalities that are responsive to the needs of learners in the midst of the pandemic. However, students are either not in favor (46.26%) or are not sure (36.45%) of the use of flexible learning. This may be attributed to the fact that they are the ones who will have a significant effect since they are the ones who will experience this new learning modality that is different from the traditional face-to-face approach. Hence, a major adjustment is needed for students to adapt to flexible learning.

Table 2. Preferred Flexible Learning Modality of Teachers and Parents

Flexible Learning Modality	Percentage of the Responses	
	Teachers	Parents
Full Online Learning	25.85	40.29
Blended Learning	66.53	43.49
Printed Modular Learning	2.55	7.62
Electronic Modular Learning	2.97	3.20
Total	100.00	100.00

It can be gleaned from the table above that parents and faculty members are most in favor of the use of Blended Learning (43.49% and 66.53% respectively) followed by Online Learning (40.29% and 25.85%, respectively). It can be stressed that both teachers and parents preferred blended learning as the learning modality. Blended learning is a type of a flexible learning modality which combines both the traditional face-to-face and online learning approaches. This also implies that still, teachers and parents believe that a certain learning modality is effective if it is combined with the traditional face-to-face approach. This can also be attributed that there are certain courses and subjects that are really intended for face-to-face interaction and it can be difficult to deliver in other forms. Previous studies had shown that blended learning is the most preferred flexible learning modality among stakeholders due to its unique features (Nortvig, Petersen, & Balle, 2018; Kintu, Zhu & Kagambe, 2017; Lynch & Dembo, 2004). In addition, many scholars claimed that this kind of modality is effective in achieving student learning outcomes (Saiz-Manzanas, et. al., 2020; Halverson & Graham, 2019). However, due to the Philippine government restriction on the suspension of the face-to-face learning delivery, blended learning cannot be implemented.

Meanwhile, the second most preferred learning modality of the stakeholders is the full online learning. Online learning is the delivery of instruction through technology and electronic media, such as the internet, satellite broadcast, audio/videotape, interactive TV, and CD-ROM. At present,

school and universities are utilizing learning management system as an online learning platform. Two approaches emerged as regards online learning modality: synchronous and asynchronous learning. In synchronous learning, instructors and students have direct interactions and simultaneous discussions using online platforms such as online chat and video conferences (e.g., Google meet and Zoom). Meanwhile, asynchronous learning is an approach in an online learning modality that does not involve real-time interaction. Students can access the lesson's content, given tasks, and assignments at their most convenient time to meet the expected deadline.

And finally, the least preferred flexible learning modality of the stakeholders is the modular learning which can be categorized into two: printed modular learning and electronic modular learning. Printed modular learning is remote learning delivery mode uses the print module. A module is an instructional material that includes information about a topic, focus on learning activities, and culminate in some assessment to demonstrate understanding. In this case, parents will be the one to get the modules of their children every two weeks of the academic year. Meanwhile, in the electronic modular learning, university staff will send soft copies of modules to the email addresses of the students. Scholars claimed that modular learning modality is a student-centered learning approach, with minimal teacher supervision and facilitation (Guan & Benavides, 2020).

Table 3. Devices Available for Flexible Learning

Devices*	Percentage of Responses		
	Students	Teachers	Parents
Desktop Computer	5.03	13.98	11.57
Laptop	43.77	85.59	61.78
Smartphone	90.94	80.93	83.37
Tablet/Ipad	5.49	11.86	19.11
Others	1.12	.00	2.27

*multiple response

The table shows that smartphone is the predominant device available for use in Flexible Learning as reported by students (90.94%) and parents (83.37%) while faculty members reported that laptop (85.59%) is the most available device for flexible learning. This supports the results of previous claims that mobile devices such as mobile phones have increased drastically and are widely used in online learning due to its convenience and also cost (Papadakis, et. al., 2017; Radha, et. al., 2020). Furthermore, smartphones and computers played essential roles among distance learning students in their academic activities.

Table 4. Devices with Internet Connectivity at Home

Devices*	Percentage of Responses		
	Students	Teachers	Parents
Desktop Computer	3.37	14.41	3.31
Laptop	19.49	67.80	22.52
Smartphone	82.34	86.02	64.36
Tablet/Ipad	3.08	11.02	7.02
Others	2.87	.00	3.51

*multiple responses

The table shows that students (82.34%), parents (64.36%) and faculty members (86.02%) report that internet is accessed most commonly through the use of smartphones.

Table 5. Means of Internet Access of University Stakeholders

Means of Internet Access	Percentage of Responses		
	Students	Teachers	Parents
Prepaid Mobile Data	65.79	48.73	48.14
Postpaid Data Plan	2.91	11.44	3.93
Broadband Internet	26.81	28.81	34.81
DSL/Fiber Connection	12.80	30.08	20.97

Internet connectivity of students as reported by the students (65.79%) and by the parents (48.14%) is most commonly done via the use of Prepaid Mobile data followed by Broadband access and DSL/Fiber connection. This trend is likewise observed for faculty members. Findings show that most of the stakeholders in the university rely on the usage of prepaid data. The finding of the study is consistent with the study of Fabito et al. (2021), which revealed that the students and teachers in the university rely on the usage of prepaid data because, in the past, before the pandemic, online learning is just optional among education institutions in the Philippines. Findings show that most of the students in the university rely on the usage of prepaid data. The finding of the study is consistent with the study of Pastor (2020), which revealed that the students in the university rely on the usage of prepaid data. It implies that students still do not have a postpaid plan because, in the past, before the pandemic, online learning is just optional among education institutions in the Philippines. Further, it also implies a lack of telecommunications company service, especially in far-flung areas, that resulted in the limitation in internet connection of some students. The study of Garcia (2017) revealed that the archipelagic characteristic of the Philippines brings additional challenges in the construction of cell towers for connectivity, especially in far-flung areas.

Table 6. Availability of Teaching and Learning Space at Home for Flexible Learning

Availability of Teaching and Learning Space	Percentage of Responses		
	Students	Teachers	Parents
Available	37.36	70.21	72.21
Not Available	62.64	29.79	27.79
Total	100.00	100.00	100.00

The table above shows that majority of students (62.64%) reported that they do not have a learning space at home that is free of distractions which can be used for performing and completing Flexible Learning tasks; however, majority of parents (72.21%) reported that their children have such learning space available. Moreover, majority of faculty members (70.21%) also reported that space at home for Flexible Learning activities is available. There are numerous advantages to online education, including the removal of learning space and time constraints (Xie et al., 2020). Online education is available to everybody, regardless of where they are or when they want to learn. However, this feature is not entirely nice for every student especially for those who don't have a physical learning place to study at their homes like the results of this study. Physical learning area, like instructional content, school organization, culture, and policy, is an important aspect of the learning environment. (Blackmore et al., 2013; Gislason, 2009). Even if digital technology is extensively utilized in education, students and instructors are always emplaced: at school, at home, or in the library (Arnou et al., 2020). Therefore, it is important to have a good physical learning area because this can either support or hinder the learning process. Some authors refer to physical learning areas as the third teacher (Arnou et al., 2020; Hall, 2017; Carter, 2007). Although a study Reyes and Gonzales, (2021) said that the classroom setup is preferred by students because this is more conducive to thoroughly learn than the space they have at home where distractions are present, there can still be ways to enhance learning at home. This can be accomplished by having a separate room or a shared room that is only used for schoolwork during specific times, such as by employing folding tables and chairs (Arnou et al., 2020). The possibilities are heavily influenced by the student's family situation and living conditions. In such cases, people will have to think outside the box. If necessary, the teacher can also contribute ideas. There must be a clear distinction between the time and/or space where people work for school and the remainder of their time and/or space for leisure and family affairs.

Table 7. Confidence in Ability for Flexible Learning

Confidence	Percentage of Responses		
	Students	Teachers	Parents
Extremely Confident	7.40	26.27	33.26
Somewhat Confident	61.26	67.80	57.64
Not Confident at all	31.34	5.93	9.09

It can be gleaned from the table above that majority of parents (57.64%) and students (61.26%) reported that they are somewhat confident in the students' ICT skills and capabilities needed for Flexible Learning. Majority of faculty members (67.80%) are also somewhat confident in their ICT skills and capabilities needed for Flexible teaching. Basic ICT skills are very important in determining human readiness for technology-based education. Students need basic ICT literacy and meta-cognitive skills to be able to attend online courses (Bundy, 2004) and the results show that the students already have it. This result conforms with previous studies wherein the majority of undergraduate students had sufficient capability in ICT usage and frequent Internet access (Tsoni&Pange, 2014). In the case of the parents, even though the results revealed that the majority of them are confident in their ICT skills and capabilities needed for flexible learning, studies suggests that training is still required to ensure that they should have skills needed to participate in their children's education via this online medium especially for those parents that are not confident at all (Smith et al., 2016). This is because parents with relatively higher ICT skills are more likely to monitor and assist their children in their education (Yu, Yuen, & Park, 2011).

Although online learning is highly reliant on technology, online instructors are not required to be technologically advanced. To be able to teach in an online learning environment, online educators just need to have basic ICT skills (Albrahim, 2020). However, some studies propose that to make the move from traditional classrooms to online classrooms, educators require training, support, and faculty development (Lee & Hirumi, 2004).

Table 8. Students Online Learning Experience

Category	Variables	Frequency	Percentage
Students' experience with Online Learning	Yes	1793	74.52
	No	613	25.48
Time spent on online learning	Less than 3 hours	424	17.62
	3-5 hours	725	30.13
	6-8 hours	597	24.81
	More than 8 hours	660	27.43

Satisfaction with online learning experience	Satisfied	123	6.47
	Somewhat satisfied	857	45.08
	Not satisfied	921	48.45
Preference mode of lesson delivery in LMS	Downloadable Video Lectures	1319	29.09
	Downloadable Documents	1879	41.44
	Lessons and Learning Tasks in the Learning Platform	1228	27.08
	Others	108	2.38

The table above shows that majority of students (74.52%) have experienced online learning. The student survey was answered by all students of the university; however, only Senior High School, College and Graduate School students have used the university's Learning Management System (LMS) which is a platform used by the University for Online learning. Most students who have experienced online learning have spent an average of about 3-5 hours (30.13%) in a week for their online learning tasks on each subject. Meanwhile, nearly half of the students claim that they are not satisfied (48.45%) with their online learning experience and prefer lessons posted online to be done via downloadable documents (41.44%). This result can be attributed to a variety of factors including access to technological devices and /or reliable internet, availability of space where students can study effectively, students' readiness and confidence for online learning, and prior online learning experience among others which have been identified by numerous studies to be associated with students' satisfaction with online learning (Abdous, 2019;; Ni, 2013; Hidayati&Saputra, 2020; Abdul-Hamid & Hamzah, 2020; Wei, & Chou, 2020; Yilmaz, 2017, Khairuddin, Arif, & Khairuddin, 2020). As a result, student satisfaction with online learning is seen as an important factor in determining the quality of online courses and learning (Dziuban et al., 2015).

Table 9. Parents Participation in Flexible Learning

Category	Variables	Frequency	Percentage
Periodic monitoring of child's progress in Flexible Learning	Yes	760	79.08
	No	201	20.92

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Provision of assistance to child for Flexible Learning activities	Yes	669	69.61
	No	43	4.47
	Not Sure	249	25.91

The role of parents in ensuring the long-term viability of flexible schooling is crucial. Flexible learning involves parents providing various forms of support to their children in order to ensure that they complete a specific academic program. This includes the provision of resources made available and accessible to learners for flexible learning purposes and assistance in doing flexible learning activities. In the current study, the result shows that majority of parents are willing to do periodic monitoring of their children's progress in Flexible Learning (79.08%) and will ensure that children who are doing Flexible Learning activities are provided assistance (69.61%). As emphasized by Lawrence & Fakuade (2021) parental involvement significantly influence learners' commitment to flexible learning. Furthermore, providing the necessary support to children stimulates the home environment and encourages cognitive growth (Tran et al., 2020). This finding confirms the results of prior studies, which found that parental involvement is critical to learning and their children's academic or educational achievement (Lawrence & Nkoae 2020; Tran et al. 2020; Ugwuegbulem 2018).

IV. CONCLUSION

The university is looking into flexible learning, an alternative mode of delivering lesson content to students, as a means of adapting to the challenges posed by the Covid-19 pandemic on education. The results of this study indicate that parents and teachers are in favor of adopting flexible learning for the incoming academic year 2020-2021. The students and faculty members were also found to possess the basic tools that are needed for the adoption of flexible learning in the university. These tools include available devices or gadgets that have internet connectivity, available learning areas at home for flexible learning activities, basic ICT skills, and previous experience with online learning. Moreover, parents have shown support for the use of flexible learning which is crucial in ensuring success of any educational endeavor. However, certain issues must also be addressed in order to ensure the success of flexible learning implementation by the university. These issues include the use of prepaid mobile data for internet connectivity, lack of satisfaction with existing online learning strategies by students, and average level confidence in ICT skills and capabilities of students and faculty members.

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The Challenge of Thai Disabled women

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Abstract— *The study of the situation of Thai disabled women (Torsangrasmee Teetakaew, 2021) has an interesting data that shows the increasing number of disabled women during the next 20 years. This is a big challenge for the preparation of the quality of life for the disabled women living through the aging society. The objectives of this research are to estimate the number of disabled women in Thailand over the next 20 years and analyze the situation by using a sample questionnaire of 2,300 disabled Thai women from 30 provinces as well as from in-depth interviews from 10 leaders of disabled women in various activity.*

The results of the study showed that the number of women with disabilities will increase from approximately 990,419 in 2021 to 1,014,015 over the next 20 years, which is a 1.95% increasing rate annually. The increasing rate of disabled women aged 60 years and above is 3.62% per year. In contrast, the percentage of younger age group will be increasing gradually at 1.44%, 1.14 %, 1.17 %, and 0.85 % for age group 0-5, 6-14, 15-21, and 22-59 years old accordingly. When classified by the type of disabilities, it was found that the number of women with disabilities increases across all types. There is an increase of approximately 1.78 - 3.01% per year for intellectual disability, learning disability, and visual disability. These types have a higher rate compared to other types of disability.

The study of the situation of women with disabilities also indicated that 50% of the samples have a monthly income of less than 5,000 Thai baths and 24% of the disabled women didn't receive an education. If education is encouraged, this could result in an increase in employment rate and higher quality of life for them. Disabled women also need government services for careers, employment, and income for their self-support. However, The spread of COVID-19 is also a big concern among disabled women. They need more support from the government for health prevention and living standards during this crisis, as well as enough sustenance, data and information, and technology and tools support. In conclusion, the challenge of Thai disabled women is from the soon-to-come aging society, which can be prepared by using and promoting the concept of active aging to elevate the living quality for all Thai disabled women in the next 20 years

Keywords— *Thai Disabled Women, Aged Society*

I. INTRODUCTION

To live in a happy society, everyone should live in a good environment. The environment that no one is left behind, especially disabled people, elder, low-income, and disabled women. Disabled women are one of the priority topics in Thailand. In 2017-2021, the second editioned action plan to improve the quality of life for disabled women is made with the motto "Disabled women can receive equal treatment and to not be discriminated against." Under four main strategies, 1) Encouraging disabled women to receive their basic human rights, welfares, and opportunities, 2) Encouraging positive and healthy mental health to all women, 3) Protecting women from all kinds of violence, and 4) Encouraging and empowering women.

It is important that Thai society care and give value to disabled women. Considering the past statistic from the Department of Empowerment of Persons with Disabilities and the Ministry of Social Development and Human Security from 2015-2020, the result shows that the number of disabled women increases every year. In 2015, the number is 604,536. In 2016, the number is 705,930. In 2019, the number is

990,395. And in 2021, the number is 1,014,015 and will continue to increase to 1,386,088 in the next 20 years

As the number rises, comes the issues for people with disabilities community including understanding their rights and not to be the victim of discrimination. Based on the research, disabled people have experienced discrimination within the family as well as sexual assault. These issues are still happening in Thailand. The question is "Why aren't these issues fixed yet?" And if the number of disabled women continues to rise, we, as a demographer and a member of the Department of Empowerment of Persons with Disabilities, need to find the solutions to this issue.

This research analyzed the issues by using the 2015-2020 data from the Department of Empowerment of Persons with Disabilities and population estimation data of Thailand from 2010-2040 (revised version) of the Office of the National Economic and Social Development Council. The data were analyzed to be used to understand the root causes better in order to come up with a constructive solution to help women with disabilities in the future.

II. METHOD

The method used in this research is the Mixed Method which is Quantitative Research, Survey Research, and Qualitative Research, as well as In-depth Interview.

1. Qualitative Research

Qualitative Research is a study of concepts, theories, laws, and policies that are for disabled women. These are guidelines to create research tools and In-depth interview questions to ask seven disabled women. The main points asked in the questions are:

- 1) Accessibility to basic rights and services received by people with special needs.
- 2) Anything related to disabled people having access to basic rights and services.
- 3) Issues confronted from trying to receive basic rights and services.
- 4) Experiencing discriminations from trying to receive basic rights and services.
- 5) Proposal regarding the solutions to the issue as well as new rules and regulations.
- 6) Policy and campaign to support and protect disabled women.

In each interview, the researcher recorded the voice memo in order to write scripts, analyze, and conclude in this research.

2. Quantitative Research

Quantitative Research is divided into two parts:

2.1) Inserting the population data from the past five years (2015-2019) into the analyzing tool, the predicted numbers of disabled women in the next 20 years can be determined. The methods to find the prediction is as follows:

Step 1: To predict the number of disabled women in the future, the first thing to do is to categorize them into the age group.

Step 2: Calculate based on the segment (0-5, 6-14, 15-21, 22-59, and 60 years and above) by distributing the number of each group equally.

Step 3: Use the equation: The number of disabled women in the future (based on age) = number of disabled women in the future of each age group * the ratio of disabled women of each age segment.

Step 4: Use the equation: The number of disabled women in the future (based on the type of disability) = number of disabled women in the future of each age group * the ratio of disabled women of each age segment (For further explanation, visit Part 2 of Data Analysis)

2.2) Collecting data process. In collecting data, the research gave out a survey to each woman with special needs around the country. In each province, 30 surveys were given out. In

total, 2,300 surveys were used as part of the data. The surveys were divided into two parts as follows:

Part 1: The questions asked about the basic information of the respondents such as gender, age, highest education, status, number of children, current address, career/job, and salary per month, source of income, type of disability, cause of disability, and caretaker.

Part 2: The questions asked about how many sources and understanding of human rights and welfare they receive from the government, as well as rating satisfaction score to services they receive.

Analyzing the data

Analyzing the data is divided into 3 parts:

Part 1: Analyzing the main topics like disabled women, situations, and accessibility to human rights using the data from the past five years (2015-2019) and from the surveys.

Part 2: Analyzing the number of disabled women in the future by using the data from the past five years (2015-2019) to predict the populations of disabled women in the next 20 years.

Part 3: Suggestions and solutions to improve the quality of life for disabled women by using the data from the questionnaires and in-depth interviews. The findings are as follow:

III. FINDING

Part 1: The main issue for disabled women, situations, and accessibility to the human rights of disabled women in the current situation.

Given the number of people with disabilities around the country in 2019, 2,000,677 people are holding the "Disability Card." The ratio of male and female is about the same at 959,133 females (47.79%) and 1,047,642 for males (52.21%). Separating the number based on age group, the study found that 13,904 people are children and young adults (0-21 years), 5,808 of which are female (41.77%). Most of them have a disability related to their brain and ability to think. 68,117 people with disabilities are the schooling age, 25,201 of which are female (37%). 845,050 people with disabilities are in the age gap between 15 to 21 years old, 333,318 of which are female (39.44%). Most have physical disabilities. 71,434 people with disabilities are of working age, 26,354 of which are female (36.89%) and have disabilities related to their brain. 1,079,503 of the people with disabilities are 60 years and older, 26,354 of which are female (36.89%) and have disabilities with movement.

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Table 1.1 Number and percentage of disabled women in 2019

Type of disabilities	Age									
	0-5 years		6-14 years		15-21 years		22-59 years		60 years and older	
	People	%	People	%	People	%	People	%	People	%
Visual	139	2.74	854	3.39	1,241	4.71	23,896	7.72	75,348	12.78
Hearing	498	8.34	2,272	9.02	2,759	10.4	36,373	16.41	131,538	22.12
Movement	1,349	26.67	5,439	21.38	7,700	28.63	129,322	42.33	342,513	57.53
Mental and behavior	24	0.41	168	0.67	420	1.59	38,369	12.81	29,129	3.38
Intellectual	1,700	29.27	7,993	31.71	8,141	34.69	37,837	12.26	3,739	0.97
Learning	27	0.46	491	1.77	909	3.45	1,939	6.34	101	0.05
Autistic	245	4.32	1,211	4.81	583	2.21	435	1.44	34	0.01
Multiple	1,867	27.87	6,102	23.91	3,334	12.08	23,323	7.80	18,114	3.05
Other	1	0.02	14	0.06	47	0.25	1,792	6.34	1,123	0.19
Total	5,968	100.0	25,201	100.0	26,384	100.0	306,984	100.0	594,899	100.0

Based on table 1.1, disabled women in the age gap between 0-5, 6-14, and 15-21 years old tend to have disabilities related to intellectual (29.27%, 31.71%, and 34.69% consecutively). The disabled women in the age gap between 22-59, and 60 years and above tend to have disabilities related to movement (42.13% and 57.53% consecutively). The main reasons for disabilities are unidentified by the doctor (50.72%), unknown (23.25%), and disable from illnesses (19.13%).

Table 1.2 Number and percentage of disabled women in 2020

Type of disabilities	Age									
	0-5 years		6-14 years		15-21 years		22-59 years		60 years and older	
	People	%	People	%	People	%	People	%	People	%
Visual	141	2.63	793	3.18	1,318	4.46	24,344	7.33	75,383	12.08
Hearing	447	8.33	2,221	8.86	2,833	9.97	32,868	15.78	139,394	22.30
Movement	1,419	28.43	5,385	21.48	5,689	19.47	134,500	60.27	362,738	58.03
Mental and behavior	19	0.35	127	0.63	436	1.38	40,267	12.71	21,861	3.50
Intellectual	1,569	29.23	8,012	31.98	9,260	33.06	48,072	14.38	4,164	0.99
Learning	27	0.50	1,006	4.02	1,813	3.84	2,345	0.64	129	0.05
Autistic	211	3.93	1,343	5.36	459	1.70	1,349	0.34	34	0.01
Multiple	1,534	28.38	8,129	24.46	5,334	20.95	29,404	8.78	18,240	2.92
Other	1	0.02	18	0.04	48	0.18	1,806	0.48	973	0.16
Total	5,368	100.00	25,856	100.00	26,410	100.00	354,852	100.00	628,116	100.00

Based on table 1.2, disabled women in the age gap between 0-5, 6-14, and 15-21 years old tend to have disabilities related to intellectual (29.23%, 31.98%, and 35.06% consecutively). The disabled women in the age gap between 22-59, and 60 years and above tend to have disabilities related to movement (40.17% and 58.03% consecutively).

Table 1.3 shows the different causes of disability. Most disabled women with visual disabilities are caused by accident (91.62%). Most disabled women with movement disabilities are caused by a genetic factor (16.64%) the details are in table 1.3.

Table 1.3 Shows the type of disability and the causes of the disabled women.

Type of disabilities	Illness		Genetic		Born		Accident		No reason		Unidentified	
	People	%	People	%	People	%	People	%	People	%	People	%
Visual	14,274	71.48	1,543	7.708	169	0.843	24,13	120.63	14,88	74.40	213	1.065
Hearing	217	0.14	98	0.63	14	0.09	22	0.14	1,187	7.59	1,781	11.38
Movement	22,211	10.99	948	4.64	17	0.08	1,339	6.46	18,81	9.37	56,31	27.38
Mental and behavior	14,603	7.09	487	2.38	48	0.24	1,13	0.55	81,31	39.93	97,76	47.94
Intellectual	8,919	4.33	274	1.32	8	0.04	254	1.24	29,72	14.63	22,43	10.91
Learning	3,448	1.67	1,868	9.01	133	0.64	333	1.62	29,28	14.13	18,28	8.81
Autistic	77	0.04	25	0.12	13	0.06	0	0.00	1,213	5.83	1,859	9.06
Multiple	8,778	4.26	1,016	4.85	40	0.19	1,041	5.01	11,34	5.42	21,33	10.28
Other	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	2,590	12.56
Total	205,888	100.0	5,697	2.76	482	0.23	10,63	0.51	238,3	11.57	499,1	24.23

In terms of the marital status of disabled Thai women, the data found that 146,245 are single, 184,395 are married, 35,646 are divorced, 6,697 are separated, 88,120 are widows, 11,162 are living together but not marry, 3,520 are others, and

483,348 are unknown. That is to say, most disabled women are married (19.23%) and single (15.25%). However, the majority chose to keep their marital status private.

In terms of education, the data for the year 2020 found that 62.65% received primary school education, 5.76 % received a high school education, and 23.81% are unknown. In the year 2019, the study also found that 25,432 of them are qualified to receive an education but chose not to. 3,025 received less than early primary school education. 59,191 received secondary school education. 52,191 received a high school education. 7,863 received higher education. 9,866 received a vocational certificate. 222 received a diploma. 1,413 received some bachelor's degree or equivalent. 1,317 received more than a bachelor's degree. 233,113 did not receive an education. That is to say, most disabled women received primary education (61.65%) and secondary education (5.44%),

In terms of career, the data for the year 2020 and 2021 found that most of the disabled women are unemployed (8.51 %) and are agriculturists (4.57 %). However, most chose to remain their career private 80.97%. In the year 2019, the study found that 117,472 disabled women chose not to identify their jobs or are unemployed. 7,829 are a student or a business owner, 2 are office workers, 4 are state enterprises, 23,066 are freelance, 822 are a bureaucrat, 3,822 are a worker, 44,374 are an agriculturist, and 6,145 are others. Based on the previous data, it is found that 24% of disabled women did not receive an education, and 12% of disabled women are unemployed or choose not to identify their careers. If education is encouraged this could result in more jobs and higher quality of life for them.

The year 2020 data shows that, as for religion, disabled Thai women have different religions, including Shintoism, Buddhism, Christianity, Hindu, and Brahminism. Most of them are Buddhist (54.09 %) and Islamic (2.66%). However, 42.84% chose not to identify their religion.

In terms of having access to utilities, 91.52 % don't have a telephone number and only 8.48 % have a telephone number. This data is similar to data from 2019.

In term of having a caretaker, using the 2019 data, majority of them have caretakers 72.04 % and 27.96% does not have one.

In terms of population distribution across Thailand, based on the 2019 data, disabled women who are 0-5, 6-14, 15-21, and 22-59 years old live in Northeastern Thailand (30.70%, 31.98%, 33.92%, 37.96% consecutively). And those who are 60 years old and above mostly live in the Northeastern part of Thailand as well (44.34%).

The 2020 data shows that most disabled women live in Northeastern at 41.05%, North at 22.25%, Central at 20.15%, Southern at 11.76%, Bangkok at 4.48%, and Unidentified at 0.31%.

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For the same topic, but now using the date from 2015 to 2019, it's found that the majority of disabled women at any age live in the Northeastern, then Central, Eastern, and Northern. The majority of them have a caretaker (70.98%) while some don't have any (29.02%).

In term of receiving welfare and public service from the government, the interesting findings from the survey are:

Disabled women have received public services from the government such as walking paths, bathrooms, and news. Next on the list are reduction of transportation costs such as train and airplane. However, things that they still lack of is being able to understand some medium and news because not all media have a sign language translator.

For the disabled women who have not received any public services from the government, they say what they want the most from the government is support for careers and income. This is to help them take care of themselves and live on a daily basis.

Based on the statistic, most disabled women are satisfied with the public services they received from the government and giving the highest rating (average score = 3.57). Considering the answers, here are the seven factors: 1. Human rights and equality (4.17 rating) 2. Well-being (3.80 rating) 3. Socializing (4.17 rating) 4. Facilities (3.46 rating) 5. Career, Employment, and Salary (3.45 rating) 6. Education (3.32 rating) 7. Sport and recreation (3.26).

Using the rating and comment from disabled women regarding how satisfied they are with the government's response to their conditions (human rights and equality), the overall score is high at a 4.17 rating. The first thing that disabled women are satisfied with is the Disabilities Identity Card (4.44 rating), disability allowance (4.36 rating), and the knowledge and understanding of their rights and laws (4.01). The factor that has the lowest rating is not having enough knowledge to file the lawsuit when discriminated against (3.88).

Using the data and the satisfaction score regarding the public services from the government, the well-being came on top at a 3.80 rating. Next, receiving services and treatment from the hospital (4.02), and receiving understanding and knowledge about health, mental health, emotions, society, and intelligence can lead to living a normal life (3.73). The factor that has the lowest rating is having an annual body check-up (3.64 rating).

Using the comments regarding their satisfaction with public services from the government and education, the overall score is on average at a 3.32 rating. When considering other factors, three factors are considered on average and two factors are considered high rating. The two highest rating factors are receiving books for free (3.35 rating) and receiving a standard

education and the IEP program (3.34 rating). The factor that has the lowest rating is supports from the education institution (3.26 rating).

Using the comment of how satisfied they are with services from the government with career, employment, and salary, the overall rating is average at 3.45. When considering other factors, two factors are considered high rating, and four factors are considered on average rating. The three highest rating factors are being employed (3.51), being trained (3.48), and being employ through an agency specifically for people with disabilities (3.25).

Using the data regarding their satisfaction with the government on socializing and living in the community, the overall score is high at a 3.55 rating. When considering other factors, three factors are considered at a high rating, and six factors are considered on average. The three highest rating factors are living with family and having a caretaker (4.05), going to social gatherings like religious events or cultural events (3.81), and living a life full of purpose (3.75). The factor that has the lowest rating is adjusting to their residency (3.18 rating).

From the data on how satisfied they are with public services from the government regarding sports and recreation, the overall score is on average at 3.46. When considering other factors, one factor is considered on average. And that is being able to join activities in the community such as sport and recreation (3.26 rating).

Based on the comment on how satisfied they are with public services from the government such as facilities, the overall score is on average at 3.46). When considering other factors, one factor is considered high and two factors are considered on average. The two highest rating factors are accessing the facilities for people with special needs, such as a ramp and bathroom for people with disabilities (3.66 rating), and a discount on public services (3.48 rating). The factor that has the lowest rating is accessing news and information via sign language, Braille, and audio (3.25 rating).

To conclude, 33.2% of disabled women gave a score of on-average, 25.5% reported highly satisfied, and 20.1% reported extremely satisfy with the privilege and benefits they receive from the government.

The analysis about the quality of life of disabled Thai women after the COVID-19 situation is as below **Table 1.4** The number and percentage of disabled Thai women who are affected by the COVID-19 situation

Effect from the COVID-19	Number	Percentage
No affect	388	16.5
Affected	1,920	83.5
Total	2,308	100.0

From the table 1.4, it founds that most of the disabled women are affected by the COVID-19 situation, 1,920 women (83.5%) while about 380 women (16.5%) are not affected.

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Table 1.5 shows the number and the percentage of disabled women who are affected from the COVID-19 situation based on different factors

Effect from the COVID-19 situation based on different factors	Percentage
Health, Hygiene, Public Health, Risk of Infection, and Worrying	63.4
Work, Career, and Income	59.6
Social and Family and Worrying about the spread of disease within the family	54.1
Stability and long-term effect	48.2

From table 1.5, it is found that the the highest factors effect is Health, Hygiene, Public Health, Risk of Infection, and Worrying at 63.4%, next Work, Career, and Income at 59.6%, Social and Family and Worrying about the spread of disease within the family at 54.1%, **and lastly** Stability and long-term effect at **48.2%**.

Table 1.6 shows the number and percentage of disabled women who are affected by the COVID-19 situation and received help

Received help after being affected by COVID-19	Number	Percentage
Did not receive help	331	14.4
Received help	1,969	85.6
Total	2,300	100.0

From the table 1.6, it is found that the majority of disabled women received help from the COVID-19 situation, 1,969 women (85.6%) and 331 women (14.4%) didn't receive help.

Table 1.7 shows the percentage of disabled women who received help from the effect of COVID-19 situation, based on the type of help

Type of help	Percentage
Have access to information and public news from the Department for Empowerment of Persons with Disabilities about the plan to manage the COVID-19 situation.	64.0
Received disability relief fund, pause on loan, and emergency loans	57.4
Access to additional channels to purchase consumer goods through online platforms which fasten the time arrival	25.4
Received masks and hand sanitizer	41.8

From the table 1.7, it finds the highest type of help is to have access to information and public news from the Department for Empowerment of Persons with Disabilities about the plan to manage the COVID-19 situation at 64.0%, next Received disability relief fund, pause on loan, and emergency loans at 57.4 %, Received masks and hand sanitizer at 41.8%, and lastly Access to additional channels to purchase consumer goods through online platforms which fasten the time arrival at 25.4%.

Part 2: Analyzing the prediction of disabled women population

Using the data from the Department of Empowerment of Persons with Disabilities years 2015-2020 to calculate in the population analyses program, it's predicted that from 2021 – 2040 (or the next 20 years), the type of disabilities will be different in each group. The type of disabilities is classified into nine types which are visual, hearing, movement, mental and behavior, intellectual, learning, autistic, multiple, and undefinable, as well as divided into five age group are preschooler (0-5 years old), grade-schooler (6-14 years old), adolescence (15-21 years old), adult (22-59 years old), and elder (60 years old and above). With the current data from

registered people with disabilities, the prediction is underestimated as there are still numbers of people who are not registered and avoid registering as people with disability due to parents' belief. However, comparing the numbers of people who register and the number of disabled women, there is not that big of a difference (less than 1%) for both to define or for practical.

Using the data from 2015-2019, it shows that the number of disabled women tends to gradually increase. In 2015, the number of disabled women is 604,459 people. In 2016, the number had increased to 959,026 people, as the number of Thai elder population increases. However, there seems to be a decrease in disabled women population, from 18% per year to 9% per year. When considering the age range, it's found that the number of disabled women tends to increase as the age gap increase. Meanwhile, the number of disabled women tend to increase in every single age gap as well. As can be seen, the age gap is important to predict and study the number of disabled women in the future. It is important to protect women to not be disabled as they aged.

Table 2.1 The numbers of disabled women from 2015-2019

Age	2015	2016	2017	2018	2019
0-5	834	1,767	2,938	4,402	5,808
6-14	16,492	19,143	21,373	23,435	25,201
15-21	21,943	23,491	24,629	25,635	26,354
22-39	231,187	253,625	271,400	290,729	306,984
40 and above	334,003	407,826	468,748	537,797	594,699
Total	604,459	705,832	789,086	883,998	959,026
Percentage		16.77	11.79	11.77	8.73

The overall estimation of the Thai population has a preliminary agreement regarding the numbers of populations in which the death leads to a decrease in the population and the birth result in an increase in the population. However, for disabled women, empirical data shows that the number of disabled women didn't decrease from aging to death. However, the numbers of aging disabled women are in fact increasing. With the two observations, 1) parents avoid registering disabled women with the young women group, and 2) some of the disabilities are not from birth, it comes later in life through illness or other factors. For example, disabilities that have to do with movement, mental illness, or behavioral. Moreover, the number of disabled women tends to "Decreasing Increase" and the structure of aging disabled women has an impact on the number of disabled women in the future. In other words, the change in the number of disabled women in the future is a result of the change in the structure of the aging population. Therefore, if the number of Thai populations tend to increase in the future, rationally the number of the disabled elder will increase, and the number of disabled women will increase in the future as well.

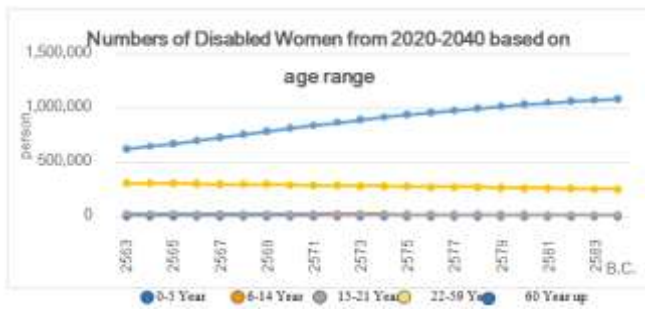


Figure 1 shows numbers of disabled women from 2020-2040. Figure 1 shows the number of disabled women from 2020 – 2040. It shows that the numbers have increased from 981,878 in the year 2020 to 1,365,196 in the next 20 years, or 1.95 % per year. The number of disabled women who are older than 60 will also increase by 3.62 % per year. As we can see, the percentage increase for women of this age is higher than the overall disabled women because of the population structure in Thailand which is drastically increasing in the elderly population, and the ratio of disabled women age 60+ is higher in comparison. In the meantime, the change in population structure in Thailand results in a decrease in disabled women in young and working age.

When categorizing the type of disabilities, we found that the number of disabled women increases across different types by approximately 1.78 % – 3.01 % per year. Intellectual disability, multiple disabilities, and vision impairment are the leading types in increasing numbers compared to other types.

Table 2.2 Numbers of disabled women based on age range

Age range	0-5	6-14	15-21	22-59	60 up	Total
2558	834	16,492	21,943	231,187	334,003	604,459
2559	1,767	19,143	23,491	253,625	407,826	705,852
2560	2,936	21,373	24,629	271,400	468,748	789,086
2561	4,402	23,435	25,635	290,729	537,797	881,998
2562	5,808	25,201	26,354	306,964	594,699	959,026
2563	5,368	25,056	26,410	308,445	625,116	990,395
2564	5,297	24,802	25,935	307,267	650,713	1,014,015
2565	5,223	24,566	25,449	305,785	677,119	1,038,142
2566	5,151	24,352	24,966	304,006	704,064	1,062,538
2567	5,075	24,164	24,461	301,973	731,637	1,087,311
2568	4,995	24,025	23,933	299,691	759,570	1,112,214
2569	4,922	23,725	23,682	296,952	787,862	1,137,142
2570	4,843	23,428	23,462	293,943	816,154	1,161,830
2571	4,768	23,137	23,280	290,800	844,266	1,186,250
2572	4,689	22,831	23,133	287,529	871,300	1,209,482
2573	4,610	22,525	23,043	284,234	896,898	1,231,310
2574	4,531	22,207	22,789	281,337	920,878	1,251,742
2575	4,449	21,889	22,539	278,512	943,422	1,270,812
2576	4,370	21,563	22,296	275,740	964,349	1,288,319
2577	4,290	21,232	22,047	272,966	984,198	1,304,732
2578	4,210	20,900	21,805	270,126	1,003,150	1,320,191
2579	4,130	20,561	21,525	267,278	1,021,113	1,334,606
2580	4,052	20,216	21,232	264,402	1,037,998	1,347,900
2581	3,973	19,876	20,951	261,570	1,053,446	1,359,816
2582	3,896	19,529	20,660	258,822	1,066,919	1,369,825
2583	3,819	19,181	20,366	256,226	1,077,966	1,377,557

Table 2.3 Numbers of disabled women based on types of disabilities

	Vision	Hearing	Movement	Mental and behavior	Intellectual	Learning	Autistic	Multiple	Unidentified	...
255		118,95								
8	71,816	6	275,422	39,373	50,161	1,998	1,572	42,224	2,937	604,459
255		119,30								
9	82,800	7	331,558	45,152	54,102	2,281	1,792	45,916	2,944	705,852
256		155,71								
0	89,594	8	379,731	50,421	57,066	2,614	2,023	48,967	2,951	789,086
256		173,29								
1	96,736	4	455,956	55,695	59,963	2,931	2,268	52,179	2,976	881,997
256		187,45								
2	101,49	8	484,163	60,110	62,207	3,227	2,506	54,880	2,976	959,026
256		194,93								
3	100,86	8	528,189	62,961	65,387	3,013	2,328	60,282	3,635	1,062,538
256		202,47								
4	115,93	0	504,042	62,604	63,817	3,507	2,737	55,307	2,590	990,395
256		210,08								
5	119,42	3	500,191	61,488	65,746	3,048	2,375	59,230	3,535	1,014,015
256		218,08								
6	122,97	7	514,097	62,233	65,579	3,032	2,351	59,757	3,585	1,038,142
256		213,76								
7	126,59	6	528,189	62,961	65,387	3,013	2,328	60,282	3,635	1,062,538
256		219,54								
8	130,23	2	542,527	63,681	65,168	2,998	2,304	60,809	3,683	1,087,311
256		225,37								
9	133,90	1	556,968	64,382	64,925	2,981	2,282	61,333	3,734	1,112,214
256		231,21								
0	137,55	5	571,446	65,041	64,675	2,967	2,259	61,850	3,781	1,137,142
256		237,01								
1	141,17	8	585,820	65,668	64,399	2,954	2,235	62,352	3,827	1,161,830
256		242,76								
2	144,63	4	600,049	66,273	64,118	2,941	2,213	62,847	3,871	1,186,250
256		248,24								
3	148,63	8	613,630	66,824	63,816	2,928	2,190	63,301	3,913	1,209,482
256		254,32								
4	147,89	5	626,413	67,322	63,514	2,917	2,169	63,720	3,951	1,231,310
256		258,25								
5	150,95	2	638,422	67,809	63,187	2,900	2,144	64,081	3,987	1,251,742
256		262,79								
6	153,82	9	649,661	68,254	62,855	2,883	2,119	64,404	4,021	1,270,812
256		266,97								
7	156,46	5	660,023	68,649	62,513	2,865	2,093	64,679	4,051	1,288,319
256		270,91								
8	158,96	7	669,781	69,005	62,154	2,847	2,067	64,917	4,078	1,304,732
256		274,64								
9	161,33	6	679,014	69,321	61,780	2,828	2,042	65,123	4,103	1,320,191
256		278,14								
0	163,57	2	687,684	69,601	61,378	2,806	2,015	65,286	4,126	1,334,606
256		281,38								
1	165,65	9	695,741	69,839	60,935	2,784	1,987	65,410	4,146	1,347,900
256		284,32								
2	167,53	5	703,018	70,031	60,528	2,762	1,960	65,495	4,163	1,359,816
256		286,82								
3	169,35	8	709,228	70,163	60,084	2,738	1,932	65,521	4,176	1,369,825
256		288,81								
4	170,44	9	714,150	70,229	59,633	2,714	1,904	65,483	4,184	1,377,557
256		290,97								
5	171,85	2	719,504	70,327	59,202	2,691	1,877	65,474	4,194	1,386,250
256		292,11								
6	173,29	8	724,150	70,449	58,749	2,667	1,851	65,444	4,201	1,394,015
256		293,25								
7	174,89	5	728,999	70,594	58,287	2,642	1,826	65,404	4,207	1,401,830
256		294,32								
8	176,59	8	734,049	70,761	57,817	2,617	1,801	65,354	4,211	1,409,086
256		295,39								
9	178,39	2	738,999	70,949	57,341	2,592	1,776	65,304	4,215	1,416,342
256		296,46								
0	180,29	9	744,149	71,158	56,859	2,567	1,751	65,254	4,218	1,423,600
256		297,53								
1	182,29	8	749,499	71,387	56,371	2,542	1,726	65,204	4,221	1,430,856
256		298,60								
2	184,39	5	754,949	71,636	55,877	2,517	1,701	65,154	4,224	1,437,612
256		299,67								
3	186,59	8	760,499	71,905	55,379	2,492	1,676	65,104	4,227	1,444,370
256		300,74								
4	188,89	2	766,149	72,194	54,877	2,467	1,651	65,054	4,230	1,451,126
256		301,81								
5	191,29	9	771,899	72,503	54,373	2,442	1,626	65,004	4,233	1,457,882
256		302,88								
6	193,89	8	777,749	72,832	53,863	2,417	1,601	64,954	4,236	1,464,638
256		303,95								
7	196,59	5	783,699	73,181	53,349	2,392	1,576	64,904	4,239	1,471,394
256		305,02								
8	199,39	8	789,749	73,550	52,831	2,367	1,551	64,854	4,242	1,478,150
256		306,09								
9	202,29	2	795,899	73,939	52,309	2,342	1,526	64,804	4,245	1,484,906
256		307,16								
0	205,29	9	802,149	74,348	51,783	2,317	1,501	64,754	4,248	1,491,662
256		308,23								
1	208,39	8	808,499	74,777	51,253	2,292	1,476	64,704	4,251	1,498,418
256		309,30								
2	211,59	5	814,949	75,226	50,719	2,267	1,451	64,654	4,254	1,505,174
256		310,37								
3	215,09	8	821,499	75,695	50,179	2,242	1,426	64,604	4,257	1,511,930
256		311,44								
4	218,79	2	828,149	76,184	49,633	2,217	1,401	64,554	4,260	1,518,686
256		312,51								
5	222,69	9	834,899	76,693	49,083	2,192	1,376	64,504	4,263	1,525,442
256		313,58								
6	226,89	8	841,749	77,222	48,529	2,167	1,351	64,454	4,266	1,532,198
256		314,65								
7	231,39	5	848,699	77,781	47,971	2,142	1,326	64,404	4,269	1,539,014
256		315,72								
8	236,09	8	855,749	78,360	47,409	2,117	1,301	64,354	4,272	1,545,830
256		316,79								
9	240,99	2	862,899	78,969	46,843	2,092	1,276	64,304	4,275	1,552,646
256										

The issues with human rights and equality are one of the most important topics. Starting from the basic human right to acceptance and respect in humanity, disabled women need to feel their sense of belonging both socially and lawfully. This leads to policy and rules planning that is related to them which can then result in the promotion and improvement of disabled women's life appropriately and respectfully. This includes healthy life, education, income, care benefits, opportunity to work, role in the society, living freely, the ability to participate in sports and social events such as religious and cultural, and the right to practice life skills according to their goals and living situation. However, issues with accessing human rights and welfare are still happening, as listed below:

1) Haven't register to receive disability benefits. This issue occurs because parents didn't report to the government about their child's conditions since when their children were younger. Another reason is that the disability that comes later in life, such as mental health. With registering for mental health, they will receive more benefits and treatment from the hospital. However, the patients can choose not to receive the recommendation or choose not to register by themselves.

2) Have no access to media and information. This issue occurs as the information is too old and hasn't been updated to match the current situation. Some media are not appropriate for some types of disabilities as well, such as blind or mentally ill people.

3) Violating disabled women's rights. Some disabled women do not receive appropriate protection, unaware, and afraid to report. These issues come from the system like policy, law, and operation.

However, the common issue is that when violence occurs, the government chooses to mediate. Nevertheless, violence is a criminal case that can't be mediated. When the government chooses to mediate, it is considered duty omission. Disabled women have the right to be taken care of and received treatment and appropriate investigation until they are able to enter society normally. The issues raise the question to the relevant staff if "What they are doing is considered appropriate?" One of the survey participants shared the idea that the staffs, who work in the disability department, mindset is that they (the staffs) feel as if they are fixing this issue based on human rights (Right Based). They think that they are doing the job as social charities. The department should use the social model to articulate appropriate procedures for people with disabilities. Disabled women are also human beings. Therefore, human rights should also apply to them. Society should take responsibility for disabled people by supporting and participating in social events to solve the 3 main obstacles that disabled women are facing. Those obstacles are (1) Physically Barrier such as building, man-made environment,

and basic utilities (2) Systematic Barrier such as administrative system. Society lacks generosity in law and political institutions. (3) Attitude Barrier such as negative attitude towards disabled women, prejudice, and stereotype. By taking care of these issues, the procedures and structures to protect disabled women with their needs can be changed. From data found, disabled women want to live life like any other women: education, employment, family, being in the society, getting access to services, traveling, medical treatment, and other human rights. Lastly, but most importantly, to be able to make decisions about her life on her own.

As the Thai population structure will shift to an increase in aging women, enhancing human rights and welfare for disabled women for the next 20 years is an important issue that required planning. Therefore, implementing the support plan for disabled women is an important topic that can't be done by just one department alone. Disabled women's issues and other disabled people's issues are one of many factors that are related to promoting the quality of life of the population in different aspects and directions. Therefore, placing this issue in every ministry is a must, and the Ministry of Social Development and Human Security should be the Focal Point to raise this issue. It will require a guideline to work sustainably, practically, and wholly under the vision that disabled women are also human.

From the research above, these are 9 challenges disabled women are facing and should be considered as part of the policy for improvement:

Issues that should be considered for improvement policy:

1) Definition of disabled women has to be separated on its own. In the past, the topic of disabled women is often included with other disabled people, which leads to ignorant and inappropriate responses to services and welfares specifically for disabled women.

2) Role of disabled women. The issues about disabled women should be a universal concern, not just the Ministry of Social Development and Human Security. The disabled women population wants to receive supports and improvement from different departments and having the Ministry of Social Development and Human Security as the Focal Point. They are also looking to see a Convention about the rights of people with disabilities: CRPD and management on discrimination against disabled women as well as children and immigrants issue.

3) Disable women's rights. Disabled women should have a space to express their opinions as well as being able to get involved in different movements in society, including holding a position in important organizations so they can be the voice to raise awareness, make decisions, and support other

disabled women. There should be more solutions to support disabled women in the following areas:

Consultation on how to protect themselves from assaults, especially for those who are not comfortable filing a complaint. However, if the assault has already happened, consultation on how to take care of themselves aftermath should be provided. With this issue, having protectors and caretakers raising awareness would be helpful as well. Another important aspect to think about is staff training. This is to make sure that they truly understand and able to communicate with disabled women effectively, such as sign language training.

Remedy Restoration or rehabilitation

Forwarding the issues to the relevant person to take care of resolve the issue effectively

4) **Career and Salary.** Fixing the regulation at the Department for Empowerment of Persons with Disabilities on the usage of funding, loan money, and take funding from employers to spread it across disable people is something to look at. When disabled women have the money, they use it as a power to make their own decisions on how they spend money on themselves and family members. Disabled women should get trained in life skills and professions that can help them stand up by themselves.

5) **Technology.** Some disabled women still don't have access to technology because they don't have the resources or WiFi. Government should work on developing technology that can facilitate disabled women to live more comfortably. The government should also invest in the system and tools that allow disabled women to access essential topics like communicating with the government agency, searching for work, and receiving news and medical advice.

6) **Making media publicity appropriate for disabled women.** The media should have visualization and captions that are easy for blind people to understand, as well as educate them on how to protect themselves from any infringement, including sexual harassment. In terms of people with mental illnesses, the media publicity needs to be adjusted accordingly. That said, distribute news using a spreading method or having volunteers knocking on the doors. This is because some people with mental illnesses might want to keep this part of their lives private.

7) **Preparing disable people, especially disabled women who are unmarried or childless, to entering the aging society.** Disabled women need to prepare themselves for the living situation, health, and insurance. The principle used is Active Ageing by the World Health Organization that focuses on preparing them in 3 areas: healthy physically and mentally, stable lifestyle, and involvement in the community.

The challenging part of being disabled women in the next 20 years is how they will live in a good condition, considering all the changes in the economy, technology, and pandemic. Even though the population and the life span for these women tend to increase, however, if their quality of life remains inferior, lack of education, unstable income, and living alone, how will the government support service and welfares that can cover the increasing numbers of disabled women in the upcoming years? On the other hand, if we can protect disability from happening with elder women through the aged proactive idea, that allows Thai women to live stably in life, income, and health, it will be a key fundamental that leads to values and powers that will encourage them to be involved in the community. It is all depending on how much we realize the importance of this topic and how do we prepare ourselves for the future to comes.

ACKNOWLEDGMENT

This study is successful because of the participation from all the disabled women. The gratitude is extended towards the Department for Empowerment of Persons with Disabilities that allows the researcher to study the important issues which can then be used to improve the quality of life for disabled women in the future. Lastly, I would like to thank the Dean of Population Studies of Chulalongkorn University, and Dean of Collage of College of Educational Innovation Research of KMITL ,staffs, and faculty who always support me

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A Model of Mobilizing Sufficiency Economy Philosophy to Educational Institutions under Samutprakan Local Government Organization

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Abstract:--

The objectives of this research were 1) to study the Sufficiency Economy Philosophy drive in Educational Institutions, 2) to develop a model of Sufficiency Economy Philosophy Driven in accordance with Buddhist principles, and 3) to propose a model of mobilizing sufficiency economy philosophy to educational institutions under Samutprakan Local Government Organization. Mixed methods research was used by integrating between documentary research, quantitative research and qualitative research. Data were collected related to strategies for driving the philosophy of sufficiency economy to educational institutions in 5 aspects by asking for opinions of secondary school students. Affiliated with local organizations Samutprakan Province from 331 samples including interview and focus group discussion of 10 experts from secondary school administrators who in driving the Sufficiency Economy Philosophy to educational institutions qualified in Buddhism and qualified in educational institution administration. Quantitative data was analyzed by using percentage, mean, standard deviation whereas qualitative data was analyzed by content analysis. The results of the research revealed that: 1) Driving the Sufficiency Economy Philosophy in Educational Institutions under Local Administrative Organizations Samutprakan Province overall in 5 aspects of students' opinions were at a high level. 2) A model of Sufficiency Economy Philosophy Driven in accordance with Buddhist principles was developed which consisted of 4parts: Part 1, introduction which are the environment, principles, and objectives; Part 2, the model that are work system, and management process; Part 3, implementation process, which are structure, decision-making, assessment guidelines; and Part 4, conditions for success.3) A model of mobilizing sufficiency economy philosophy to educational institutions under Samutprakan Local Government Organization was divided into 4 parts, namely the first part, the introduction which are the environment inside and outside the school, new principles and methods which are Royal initiatives with 9 Great Ideas. The objective is the expected success of applying Sufficiency Economy Philosophy to educational institutions that will happen to stakeholders. Part 2 The model are the work system, which is the strategy of driving the philosophy of sufficiency economy to educational institutions in 5 areas: 1) development of educational management guidelines according to the philosophy of sufficiency economy, 2) personnel development, 3) expansion and network development, 4) public relations, 5) development of monitoring and evaluation processes. The management process, which is a ten-step process. Part 3, the implementation process, which is the conceptual structure of sufficiency economy of 3rings and 2 conditions, and 4 dimensions of linkage; decision making in applying the steps to drive the Sufficiency Economy Philosophy. According to the Buddhist teachings to be used in educational institutions with 9steps, assessment guidelines according to the sufficiency economy learning standards for each grade level was used. Part 4, conditions for success depend on the context of the educational institutions under Local government organizations,

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namely the curriculum, vision, mission and policy of the school administrators in driving the Sufficiency Economy Philosophy in accordance with the Buddhist principles.

Keywords:

Model of Mobilizing, Sufficiency Economy Philosophy, Buddhist Principles

Development of Online Teaching Management Model in Schools under Office Secondary Educational Service Area 4

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Abstract:--

The purposes of this research were 1) to study the problem condition of online teaching management in secondary schools, 2) to develop an online teaching management model in secondary schools, and 3) to propose an online teaching management model in secondary schools. The method were 1) quantitative research, which the 343 samples were analyzed by means of statistical analysis, mean and standard deviation, and 2) qualitative research using focus group discussion of 9 experts, and 12 expert panelists to review the appropriateness of a model. Data was analyzed by content analysis. Results indicated that 1) Problems in online teaching management overall, it was found that at a high level. When considering each aspect, it was found that online measurement and evaluation were at the highest level, and the context or environment in online teaching is at the last level. 2) Development of an online teaching management model in secondary schools, the elements of online teaching and learning management consist of: (1) Learners have knowledge and skills in information technology, (2) Instructors have qualifications, experience, knowledge and understanding of the subjects taught, counseling, (3) Lessons, the content taught is up-to-date and can be applied in daily life, (4) Context in online teaching, modernization of media, technology and innovations that facilitate learning in the curriculum, (5) Activities, Teaching and Learning that focuses on learners are provided, (6) Online measurement, Measure and evaluate the results consistent with the content and the objectives of the learning group. This also requires participation of the school administrators and parents. 3) The experts examined the model of online instructional management in secondary schools and found that it was appropriate and feasible to use in schools for the management of online teaching in secondary schools.

Keywords:

Online Teaching, Management, Educational

Strategy of Online Teaching Management in Schools under Office of Scondary Educational Service Area 4

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Abstract:--

The purposes of this research were 1) to study the condition of teaching and learning management through the online system in educational institutions, 2) to develop strategies, and 3) to propose strategies for teaching and learning through online systems in educational institutions. The mixed research methodology was used in the study. The quantitative data were collected by questionnaires from 343 samples and the qualitative data were collected by in-depth interviews with 10 key-informants and by focus group discussions with 9 key-informants. The tools used in the data analysis were mean and standard deviation. Results indicated that 1) The condition of teaching and learning through the online system in educational institutions in general, it was found that there were opinions on the general condition at a high level. When considering each aspect, it was found that the evaluation aspect has the highest level of strategy context or teaching environment has the lowest level of strategy. 2) Strategies for teaching and learning through the online system in educational institutions consist of: 1. Preparation the advantage of online teaching is that the lessons offered online are generally well planned and delivered consistently. 2. Teaching operations, The effectiveness of online teaching and learning also depends mainly on the teachers who act behind the learners' learning. 3. Management, Online teaching takes place without any restrictions on time and place. 4. Learning assessment, Online tutors must be aware of and take into account the assessment strategies. 3) The experts have reviewed the strategies of teaching and learning through online systems in educational institutions. It was found that the appropriateness and feasibility of using in order to manage teaching and learning through the online system in educational institutions.

Keywords:

Strategy of Online, Teaching, Educational

A Model of Characteristics Development based on the Five Precepts for Educational Personnel in Schools under Office of Secondary Educational Service Area 2

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Abstract:--

The objectives of this research were to study the characteristics of educational personnel in schools, to develop a model for developing characteristics of educational personnel based on the five precepts in schools under the Office of Secondary Education Service Area 2, and to propose a model of characteristics development based on the five precepts for educational personnel in schools under Office of Secondary Educational Service Area 2. Mixed methods research was used for research design by integrating documentary research, quantitative research and qualitative research, which included studying, analyzing and collecting characteristics of educational personnel in 4 aspects; asking for opinions of educational personnel under Office of Secondary Educational Service Area 2, and collected from 250 samples. Interviewed and focus group discussion with 10 experts from the school administrators, personnel management, expert qualified in Buddhism and qualified in educational institution administration. Data were analyzed by using percentage, mean, standard deviation and content analysis. Results showed that 1) the characteristics of educational personnel in schools in 4 aspects was shown at a high level. 2) A model for developing characteristics of educational personnel based on the five precepts in schools under the Office of Secondary Education Service Area 2 was developed and divided into 4 activities. 3) A model of characteristics development based on the five precepts for educational personnel in schools under Office of Secondary Educational Service Area 2 consisted of 4 aspects of compliance with the current educational personnel scope: 1) educational personnel in the 21st century; 2) educational personnel in the Thailand 4.0 era; 3) educational personnel in the changing era; and 4) educational personnel in the development of learning potential integrated with the Five Precepts, which was intentional refraining from killing all deliberately refrain from stealing deliberately refraining from sexual misconduct deliberately refrain from lying, slandering, slanderous speech, deliberately abstaining from alcohol. There were 4 activities for the development of educational personnel in the present era which consisted of activities 1 educational personnel in the 21st century, solving problems facing current media. Activity 2 was educational personnel in the Thailand 4.0 era, and systematic course planning information. Activity 3 was educational personnel in the era of change, traditional teaching to modern teaching and learning. Activity 4 was educational personnel to develop learning potential and competence according to professional standards appropriately.

Keywords:

Characteristics Development, Educational Personnel Characteristics, Five Precepts

A Model of Teacher-Characteristics Development based on Sangahavatthu IV Principles for Schools under Office of Secondary Educational Service Area 4

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Abstract:--

The purposes of this research were to study teachers-characteristics in schools under the Office of Secondary Educational Service Area 4, to develop a model of teachers-characteristics development based on Sangahavatthu IV principles in schools, and to propose a model of teachers-characteristics development based on Sangahavatthu IV principles in schools under the Office of Secondary Educational Service Area 4. Mixed methods research was used by integrating documentary research, quantitative research and qualitative research which was to study, analyze and collect characteristics of teachers in schools under the Secondary Educational Service Area Office, Region 4 in 9 aspects with 165 samples. Interviewed and focus group discussion was conducted with 10 experts of secondary school administrators, expert in Teacher Personnel Management, and qualified persons in educational institution administration. The statistics used were percentage, mean, and standard deviation, and qualitative data was analyzed by content analysis. Results showed that 1) teachers-characteristics in schools under the Office of Secondary Educational Service Area 4 overall in 9 aspects, and the teachers' opinions were at a high level. 2) A model of teachers-characteristics development based on Sangahavatthu IV principles in schools under the Office of Secondary Educational Service Area 4 was developed and consisted of 4 activities. 3) A model of teachers-characteristics development based on Sangahavatthu IV principles in schools under the Office of Secondary Educational Service Area 4 was proposed and consisted of teacher characteristics in schools with 9 aspects: 1) Teachers must love and have mercy on their students, 2) Teachers must train, teach, practice, build knowledge, 3) Teachers must behave and behave as a role model for students, 4) Teachers must not act against their progress, 5) Teachers must not seek benefits that are unpaid, 6) Teachers should develop themselves in profession, 7) Teachers love and have faith in the teaching profession, 8) Teachers should help and support teachers and community in a creative way, 9) Teachers should behave as leaders integrating with Sangahavattha IV principles, namely: giving, kindly speech, doing good, even and equal treatment, with 4 activities: Activity 1, Development of Giving, Knowledge and Sharing; Activity 2, Developing kindly speech, using nice speech and congratulations to others; Activity 3, Developing doing good by helping others and promote ethics; Activity 4 developing even and equal treatment by creating equality for mutual benefits.

Keywords:

Teacher-Characteristics Development, Sangahavatthu IV Principles, Secondary Schools

A Model of General Administration Development Based on Bala Principles for Schools under Office of Primary Educational Service Area 1

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Abstract:--

The purposes of this research were to study the general administrative conditions in primary schools, to develop a model of general administration development based on Bala Principles for primary schools, and to propose a model of general administration development based on Bala principles for schools under Office of Primary Educational Service Area 1. Mixed methods research using documentary research, quantitative research, and qualitative research was designed. Data were collected compilation of the scope of general administration in 4 areas and the principles of physical education 5 by asking for opinions from 327 primary school teachers under Office of Primary Educational Service Area 1. Interviewed and focus group discussion with 10 experts of the primary school administrators and general administrators in Buddhism and experts in educational institutes administration. Qualitative data was analyzed by using content analysis whereas quantitative data were analyzed using percentage, mean, and standard deviation. Results of the research found that 1) the general administrative conditions in primary schools, an overview of 4 aspects were shown at a high level. 2) A developed model of general administration development based on Bala Principles for primary schools consisted of 4 parts: Part 1, introduction consisted of environment, principles, and objectives. The second part was the model, the work system and the management process. The third part was the implementation process that were the decision-making structure, the assessment guideline. The fourth part was the conditions for success. 3) A model of general administration development based on Bala principles for schools under Office of Primary Educational Service Area 1 consisted of 4 parts: Part 1, introduction which were the environment of the educational institution principles of general administration and objectives of general administration. Part 2, the model was the work system such as the scope of general administration in 4 areas: administrative operations, Technology and Innovation for Education, Facility and Environment, Management Public relations. For Bala Principles such as faith, persistence, mindfulness, concentration, and wisdom. Activities for the development of general administration according to Bala Principles consisted of 5 activities which were Activity 1: Strengthening of Faith in General Administration; Activity 2: Process to Promote Perseverance in Performance; Activity 3: Mindfulness in the performance of the duties of the general administration group; Activity 4, Meditation and Meditation in the performance of work; and Activity 5: Enhancement of intelligence for general administration, and operations management process as assigned. Part 3 Implementation process, it is the structure of general administration in 9 aspects, decision making according to the steps in the implementation of general administration to be effective in 5 aspects, assessment guidelines according to the qualifications of general practitioners in 9 items. Part 4, conditions of success depending on with the context of elementary school under the Office of Primary Educational Service Area 1, namely the vision, mission, policy of administrative operations, Technology and Innovation for Education, Facility management, and public relations environment for educational institute administrators.

Keywords:

Format, Development of General Administration, Bala Principles

The Development Model of Teachers' Potential for Reducing Disparities in Education in Phrapariyattidhamma Schools, General Education Division

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Abstract:--

The objectives of this research were 1) to study the potential condition of teachers in Phrapariyattidhamma School, General Education Division to reduce educational disparities; 2) to develop a model of teacher potential in Phrapariyattidhamma schools, General Education Division to reduce educational disparities; 3) to propose a model of teacher potential in Phrapariyattidhamma School, General Education Division to reduce educational disparities. Mixed methods research was designed including quantitative research and qualitative research. The tools used in the research were questionnaires of 354 samples. Statistics used in data analysis were percentage, mean, standard deviation, and data from in-depth interviews with the director, academics and experts of 10 key informants and focus group discussion of 9 experts to examine the potential patterns of teachers in Phrapariyattidhamma School, General Education to reduce educational disparities. Qualitative data was analyzed by content analysis. The results of the research revealed that: 1) the potential condition of teachers in Phrapariyattidhamma School, General Education Division to reduce educational disparities found that teachers were developed more than twice a year, with the greatest amount of improvement in subject content related to the subjects taught by joining the potential development on Saturday - Sunday. National Buddhism Office is responsible for the budget for attending the training. The content of the subjects that have been developed for teachers' potential can be used to meet their needs, methods for developing teacher potential training is the most used method, and followed by workshop study visit learning from practice job rotation continuing education and seminars. 2) A model of teacher potential in Phrapariyattidhamma schools, General Education Division to reduce educational disparities was developed and consisting of values, skills, knowledges, attributes, and method for teacher development. 3) A model of teacher potential in Phrapariyattidhamma School, General Education Division to reduce educational disparities consisted of 1) developing teachers' potential in values, 2) developing teachers' potential in skills, 3) Development of teachers' potential in knowledge, 4) Development of teachers' potential in terms of desirable attributes, and 5) Methods for developing teachers' potential such as continuing education at the higher level, seminar, workshop, study from best practice, job rotation, learning by practice, self-study, research and development work in duty, and mixed methods development.

Keywords:

Model Development, Teacher Potential, Phrapariyattidhamma School Department of General Education, Education Disparity

A Model for Developing Abhidhamma Learning Potential for Abhidhammachotika College Students Mahachulalongkornrajavidyalaya University

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Abstract:--

The purposes of this research were to study the condition of Abhidhamma learning potential for Abhidhammachotika College students, to develop a model for developing Abhidhamma learning potential for Abhidhammachotika College students, and to propose a model for developing Abhidhamma learning potential for Abhidhammachotika College students Mahachulalongkornrajavidyalaya University. Mixed methods research was used for research design integrating documented research, quantitative research and qualitative research, which consisted of studying, analyzing and collecting learners' potential in 5 aspects, data were collected for opinions on the Abhidhamma learning potential for Abhidhammachotika College students from 327 students; interviewing and focus group discussion with 10 experts from a group of executives with qualifications in educational administration and in the field of Abhidhammachotika College Mahachulalongkornrajavidyalaya University. Quantitative data were analyzed by using percentage, mean, standard deviation and qualitative data was analyzed using content analysis. The results of the research showed that 1) the condition of the Abhidhamma learning potential for Abhidhammachotika College students Mahachulalongkornrajavidyalaya University, overall in 5 aspects was at a high level. 2) A model for developing the Abhidhamma learning potential for Abhidhammachotika College students was developed which consisted of 4 parts. The first part is the leading part, which is the environment, principles, objectives. Part 2, the model is the work system, namely 5 aspects of 3 learner potential, 9 levels of Abhidhamma study course, and management process. Part 3, implementation process: structure, decision-making, assessment guidelines, and Part 4, conditions for success. 3) A model for developing Abhidhamma learning potential for Abhidhammachotika College students Mahachulalongkornrajavidyalaya University consisted of 4 parts. Part 1, the lead part, which are environment, principles, objectives; Part 2 is the model that consisted of work system which are the student's potential in 5 aspects, namely competence in communication, the ability to think, problem solving ability, ability to use life skills, and ability to use technology; and three learning aspects which consisted of cognitive domain, affective domain, and psychomotor domain. The Abhidhamma study course of 9 levels were set, namely: Level 1 is Chula Aphidhamikatri, Level 2 is Chula Aphidhamika Tho, Level 3 is Chula Aphidhamika Ek, Level 4 is Majjima Abhidhamma Mika Tri, Level 5 is Majjima Abhidhamma Mika Tho, Level 6 is Majjima Abhidhamma Mika Ek, Level 7 is Maha Abhidhamma Mika Tri, Level 8 is Abhidhamma Mikatho, and Level 9 is Maha Abhidhamma Mika Ek including learning management. Part 3 Implementation process consists of Structure, Decision Making, Assessment Guidelines; and Part 4 Success Conditions for Developing Abhidhamma Learning Potential for Abhidhammachotika College students.

Keywords:

Model of Potential Development, Learning Abhidhamma, Abhidhammachotika College.

Academic Administration Development of Child Development Centers in Charity Schools of Buddhist Temples

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Assoc.Prof.Dr.Intha Siriwan, Mahachulalongkornrajavidyalaya University, Thailand

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Dr.Thongdee Sritragarn, Mahachulalongkornrajavidyalaya University, Thailand

Abstract:--

The objectives of this research were 1) to study the condition of academic administration of child development centers in charity schools of Buddhist temples; 2) to develop academic administration of child development centers in charity schools of Buddhist temples; and 3) to propose guidelines for the development of academic administration of child development centers in charity schools of Buddhist temple. Quantitative and qualitative research was designed. The sample group was 354 executives and data were analyzed using statistics of mean and standard deviation, focus group discussion with 9 experts, and analyzing the research papers. Results indicated that 1) academic administration of the Child Development Center in charity schools of Buddhist temples, overall and in all aspects, was at a high level, including academic work, budget, school public relations, personnel work, and student affairs administration. The mean was 3.52, in order of importance of academic work in charitable schools of Buddhist temples. 2) Results of development consisted of studying and analyzing strategies for the development of academic administration in various fields, such as the process of promoting and developing academic work by bringing innovations in educational technology to develop an academic event management system to develop learning and changes in the situation of the current world society. 3) Guidelines for the development of academic administration at the Center have important elements, namely strategies for the development of academic work and create a strong corporate culture. There are leaders or executives with vision, long-sighted (Cakkhumā), expertise in academic work (Vidhūro), skilled in human relations, (Nissayasampanno) according to the "Pāpaṇika-dhamma" to lead the organization to develop academic administration of the Child Development Center in the charity school of Buddhist temples in the Thailand 4.0 era.

Keywords:

Academic Administration Development, Child Development Centers, Charity Schools of Buddhist Temples

A Model of Effective Personnel Administration Based on Bhuddhadhamma for Primary Schools under Bangkok Metropolitan Administration

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Abstract:--

The objectives of this research were 1) to study the condition of effective personnel administration for primary schools under Bangkok Metropolitan Administration, and 2) to develop a model of effective personnel administration for primary schools under Bangkok Metropolitan Administration. Mixed methods research was designed by combining between qualitative research and quantitative research. In qualitative research, documentary study, in-depth interview of 5 school administrators, and focus group discussion with 9 experts were designed. The research tools were a document study form, and interview form. Data were analyzed by using content analysis. In quantitative research, the sample consisted of 390 samples who were directors, department heads and teachers in secondary schools by using multistage randomization. The research instrument was a questionnaire. Data were analyzed by using statistical analysis consisted of percentage, frequency, mean and standard deviation. Results showed that: 1) the condition of effective personnel administration for primary schools under Bangkok Metropolitan Administration consisted of 6 aspects. Overall, there were problems that need to be solved in terms of manpower planning and positioning aspect, information was prepared to allocate the staffing of government teachers and educational personnel. Personnel management aspect was the allocation of government teachers and educational personnel in terms of promoting efficiency, there are some who receive the same salary for one who has more service life. 2) A model of effective personnel administration for primary schools under Bangkok Metropolitan Administration, there were 5 components which were 1) principles, 2) objectives, 3) personnel management process according to Buddhist principles, 4) implementation of the model, and 5) conditions for success by checking according to the standards in 6 areas, the overall result was at a high level.

Keywords:

Personnel Management, Efficiency, Buddhist Principles, Prejudice 4, Four Sublime States of Mind

Development of Teacher Competency Model based on Buddhadhamma Principles for Teachers in Primary Schools under Bangkok Metropolitan Administration

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Dr. Lampong Klomkul, Mahachulalongkornrajavidyalaya University, Thailand

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Abstract:--

The purpose of this research was to study the components of the teacher competency based on Buddhadhamma Principles, to develop a model of teacher competency based on Buddhadhamma Principles, and to propose a model of teacher competency based on Buddhadhamma Principles for teachers in primary schools under Bangkok Metropolitan Administration. Multiphase mixed methods research was designed and was divided into 3 phases. Phase 1 was qualitative research, the key informant was School administrators of 9 people and the target group in focus group discussion of 9 experts and were selected by purposive sampling. Data was analyzed by using analytic induction. Phases 2-3 used quantitative research, the sample group of 50 people was obtained by using two-stage random sampling, data analysis using descriptive statistics, and research hypothesis testing by checking the validity of the structural equation model. The results of the research showed that: 1) The components of the competency of being a teacher based on Buddhadhamma Principles of the teachers of primary schools under the Bangkok Metropolitan Administration were important factors, and there was a causal relationship consisting of 1) the characteristics of the teachers, 2) development of teachers' knowledge, and 3) pedagogical knowledge of teaching. 2) A model of teacher competency according to Buddhist principles of teachers of primary schools under Bangkok was developed. There were components that were important factors and showed a causal relationship. Results that will lead to Bhavana IV and Bhavit IV of educational institution administrators consisted of 1) teachers' characteristics in 5 areas, 2) teachers' knowledge development in 5 areas, 3) pedagogical knowledge of teaching in 5 areas, 4) prayers 4 aspects, and 5) four aspects of life, and the results of the examination found that possible be accurate. 3) A model of teacher competency based on Buddhadhamma Principles for teachers in primary schools under Bangkok Metropolitan Administration was proposed as a causal relationship model. It was consistent with the empirical data (Chi-square = 198.68, df = 210, p = 0.702, RMR = 0.000). Teachers' characteristics, teacher knowledge development and pedagogical knowledge of teaching were able to promote the competence of a teacher through Bhavana IV and Bhavit IV.

Keywords:

Developing competency models, Being a teacher, Buddhist principles

Development of Teaching Management Model based on the STEM Education in Phrapariyattidhamma School General Education Division

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Abstract:--

The purposes of this research were 1) to study teaching management based on the STEM Education in Phrapariyattidhamma School General Education Division, 2) to develop teaching management model based on the STEM Education in Phrapariyattidhamma School General Education Division, and 3) to propose teaching management model based on the STEM Education in Phrapariyattidhamma School General Education Division. The sample group in this research were teachers, monks and novices in Phrapariyattidhamma School General Education Division with 150 samples by using simple random sampling. In documentary study, the researcher studied concepts, theories and related research in accordance with the development of teaching and learning management model based on the concept of STEM education Phrapariyattidhamma School Department of General Education. Semi- structured interview was used for interview 10 key informants. Focus Group Discussion with 8 experts was also conducted, and questionnaires was used for collecting about the usefulness, feasibility, suitability, validity with teachers, monks, novices, to examine the draft development of teaching management model based on the STEM education in Phrapariyattidhamma School General Education Division. Quantitative data were analyzed by using descriptive statistics whereas qualitative data was analyzed by using content analysis. Results of the research were as follows: 1) Teaching management based on the STEM Education in Phrapariyattidhamma School General Education Division consisted of 4 subjects which were Science (S), Technology (T), Engineer (E), and Mathematics (M). 2) Teaching management model based on the STEM Education in Phrapariyattidhamma School General Education Division was developed. Students who used the STEM Education concept based on the problem-based learning management showed that after studying, it was significantly higher than before at .05 level. 2) The students' skills and process after learning management and teaching based on STEM Education using problem-based learning was at high level. The students' opinions towards learning management according to the STEM Education using problem-based learning was at high level. 3) Teaching management model based on the STEM Education in Phrapariyattidhamma School General Education Division was proposed for teaching and learning management with effectively.

Keywords:

Teaching Management Model, STEM Education, Phrapariyattidhamma School, Problem-based Learning

Teaching and Learning Management Process in Educational Reform Period in Charity Schools of Buddhist Temples

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Abstract:--

The purposes of this research were 1) to study the teaching and learning conditions of charity schools of Buddhist temples, 2) to develop the teaching and learning process of the temple charity school, and 3) to propose the teaching and learning process of Buddhist temple charity schools in educational reform period. Mixed methods research was designed by using integrated research methodology of documentary research, quantitative research and qualitative research, which consisted of studying, analyzing and collecting the process of teaching and learning in 5 aspects. Data were collected opinions on the condition of teaching and learning management of temple charity schools from administrators and teachers of Buddhist temple charity schools from 248 samples, interviewed and focus group discussion with 10 experts of administrators, teachers in charity schools of Buddhist temples. Quantitative data were percentage, mean, standard deviation whereas qualitative data was analyzed by content analysis. Results showed that 1) teaching and learning conditions of charity schools of Buddhist temples in the overall 5 aspects found that it was at a high level. 2) The teaching and learning process of charity schools of Buddhist temples educational reform period consisted of principles, objectives, methods, and teaching-learning processes of charitable schools of Buddhist temples in educational reform period. 3) Teaching-learning processes of charitable schools of Buddhist temples in the educational reform period consisted of 1) Principles, which showed the process of teaching and learning in 5 aspects, the process of teaching and learning in the 21st century, and the policy of the Office of the Basic Education Commission under the National Education Plan in educational reform period; 2) Goals, which are goals of learners, and goals for educational management; 3) Methods are policies and guidelines for driving basic education; 4) Processes are teaching and learning processes of charitable schools of Buddhist temples in educational reform period and the implementation strategies of educational reform period.

Keywords:

Teaching and learning process, Charity Schools of Buddhist Temples, Educational Reform Period

Development of Transformational Leadership based on Buddhhadhamma for Teacher-Monks in Phrapariyattidhamma Schools, Dhamma Study Division, in Sangha Regional Administration Area 1

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Abstract:--

The purposes of this research were to study the state of transformational leadership, to develop transformational leadership based on Buddhhadhamma for teacher-monks in Phrapariyattidhamma schools, and to propose a transformational leadership based on Buddhhadhamma for Teacher-Monks in Phrapariyattidhamma Schools, Dhamma Study Division, in Sangha Regional Administration Area 1. Mixed methods research was designed using documentary research, quantitative research and qualitative research, which consisted of studying, analyzing and collecting from 6 aspects of transformational leadership, asking for opinions on leadership changes from 205 teaching teachers in the Dharma Teaching School, Dharma Department. Interviewing and focus group discussion were conducted with 10 experts from the group of administrators of Phrapariyattidhamma School, qualified person in the field of Dharma, Sanam Luang Dharma Department, expert in Buddhism and experts in educational institutes administration. Statistics used were percentage, mean, standard deviation, and qualitative data was analyzed by content analysis. Results indicated that 1) the state of transformational leadership based on Buddhhadhamma for Teacher-Monks in Phrapariyattidhamma Schools, Dhamma Study Division, in Sangha Regional Administration Area 1 in overall 6 aspects, teachers' opinions were at a high level. 2) Transformational leadership based on Buddhhadhamma for teacher-monks in Phrapariyattidhamma schools was developed, all 6 aspects are integrated with the four aspects of power, namely Chanta, Viriya, Chitta and Vimangsa, and organize activities to promote leadership development and change according to the Buddhist principles. 3) A transformational leadership based on Buddhhadhamma for Teacher-Monks in Phrapariyattidhamma Schools, Dhamma Study Division, in Sangha Regional Administration Area 1 was proposed by promoting transformational leadership of the monks to teach the Dharma and has 6 aspects: 1) creating prestige or having ideological influence, 2) inspiration, 3) taking into account the individuality, 4) Intellectual stimulation, 5) Situational reward, 6) Special talent, and organized activities to promote the development of transformational leadership according to the four aspects of power, namely Chanta, Viriya, Chitta and Vimangsa: 1) Activities for developing prestige or influence, 2) Activities for developing leadership, changing motivation, 3) Activities for develop transformational leadership in regards to individuality, 4) Activities for leadership development, intellectual stimulation changes, 5) Activities for leadership development, reward situational changes, 6) Activities for leadership development, and talent changes.

Keywords: Development of Transformational Leadership, Buddhist Principles, Teaching Monks in the Sanam Luang Dharma Department

Development of Personnel Administration Based on Brahmavihara Principles for Schools under Office of Primary Educational Service Area

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Abstract:--

The purpose of this research were to study the condition of personnel administration in primary schools, to development of personnel administration based on Brahmavihara principles of primary schools, and to propose the process of personnel administration based on Brahmavihara principles of primary schools under the Office of Primary Educational Service Area. Mixed methods research was designed by using documentary research, quantitative research and qualitative research, which included studying, analyzing and collecting the scope of personnel management in schools in 5 aspects; asking for opinions of primary school teachers under the Bangkok Primary Education Service Area Office, and 327 samples were used for data collection. Interview and focus group discussion were conducted with the primary school administrators, personnel management, expert qualified in Buddhism and qualified in educational institution administration with 10 experts. Quantitative data were analyzed by using percentage, mean, standard deviation, and qualitative data was analyzed by content analysis. Results showed that 1) the condition of personnel administration in primary schools under the Office of Primary Educational Service Area, overall 5 aspects, teachers' opinions were at a high level. 2) Personnel administration based on Brahmavihara principles of primary schools in accordance with the framework of personnel management in educational institutions with Brahmawihan principles and activities to promote personnel administration development for 4 activities. 3) The process of personnel administration based on Brahmavihara principles of primary schools under the Office of Primary Educational Service Area, it consists of compliance with the scope of personnel management in educational institutions in all 5 areas: 1) manpower planning and positioning, 2) recruiting and promoting, 3) enhancing efficiency in government service, 4) Discipline and maintenance of discipline, 5) Resignation from government service integration with Brahmavihara principles, namely loving-kindness (*mettā*), compassion (*karuṇā*), (empathetic joy) *muditā*, (equanimity) *upekkhā*, and 4 activities to promote the development of human resource management according to the Brahmavihara principles, namely Activity 1: Self-Generation Development, Activity 2: Cultivation of Kindness in one's mind and helping others, Activity 3: Rejoicing and Congratulations to others, Activity 4: Enhancement of *Upekkhā* praying for strength

Keywords:

Development of personnel management, Brahmawihan 4 principles, primary school

Model of Learning Management based on the Threefold Training of Child Development Centers under Local Administrative Organization

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Abstract:--

This research article aimed to propose a model of learning management based on Threefold Training of child development centers under the local administrative organization. Mixed methods research was designed with three research steps: Step 1 study the condition of learning management according to Threefold Training. A questionnaire was used for collecting data from 602 caregivers of young children. The data were statistically analyzed including percentage, mean and standard deviation. Step 2 developing a model by interviewing 10 key informants with a semi-structured interview. The third step was to propose a model using a focus group discussion of 8 experts. Data were analyzed by content analysis. Results of the study showed that a model of learning management based on Threefold Training of child development centers under the local administrative organization, it is a learning management along with morals and ethics according to Threefold Training principles for preschool children to be children with age characteristics and able to live happily, consisting of 1) principles, 2) objectives, 3) implementation steps according to the PDCA process, and 4) learning management plans according to Threefold Training principles of the child development center under the local government organization with guidelines for learning management according to Threefold Training principles for early childhood education aged 3-5 years: (1) Activities 6 were movement and rhythm, to enhance experiences, creativity, freedom, outdoors and educational games; (2) Threefold Training principles (precepts, concentration, and wisdom) are behaviors that express self-development according to Threefold Training principles; (3) Activities, learning content and weekly learning units.

Keywords:

Model, Learning Management, Threefold Training, Child Development Centers.

A Model of Learning Organization Development based on Sappaya Dhamma for Schools under Office of Secondary Educational Service Area

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Abstract:--

This research aimed to study the state of being a learning organization for schools, to develop a model of learning organization development based on Sappaya Dhamma for schools under Office of Secondary Educational Service Area, and to propose a model of learning organization development based on Sappaya Dhamma for schools under Office of Secondary Educational Service Area. Mixed methods research was used by integrating documentary research, quantitative research, and a qualitative research which consisted of studying, analyzing and collecting 12 aspects of learning organization by asking for opinions on the learning organization status from secondary school teachers under the Office of Secondary Education Service Area 6, Samut Prakan Province, and 338 samples were collected. Interviewed and focus group discussion from 10 experts of high school administrators, expert in learning organization, experts in Buddhism and experts in educational institutes administration. Quantitative data were analyzed by using percentage, mean, standard deviation and content analysis. The results showed that 1) the state of being a learning organization for schools under the Secondary Educational Service Area Office, overall in 5aspects, was at a high level. 2) A model of learning organization development based on Sappaya Dhamma was developed which consists of part 1, which is the environment, principles, and objectives; part 2, the model, which is the work system, which consists of the 12 aspects of learning organizations and management processes; part 3, the implementation process: structure, decision-making, assessment guidelines, and part 4 is the condition for success in integrating the Sappaya Dharma principle in an educational institution. 3) A model of learning organization development based on Sappaya Dhamma for schools under Office of Secondary Educational Service Area consists of 4 parts as follows: Part 1 The environment inside and outside of schools is the concept of learning organization and the concept of Sappaya Dhamma, and the objectives are learning management with Sappaya Dhamma. Part 2, the model consists of the work system, which is the 12 aspects of the learning organization, namely: (1) Strategy or vision, (2) Management, (3) Management operations, (4) Atmosphere, (5) Organizational structure or work, (6) Distribution of information, (7) Performance of individuals and teams, (8) Work processes, (9) Goals of work or information Back, (10)Training or education, (11)Personnel or team development, (12) Reward or recognition, 2) Management process. Part 3 Implementation process are 1) the structure of administration in educational institutions, and 2) Decision making is to arrange an organization or organization in an educational institution to be a learning organization in 8 items. 3) Assessment approach is to evaluate and report the results according to the plan and the presentation of the report to be a master learning organization; and Part 4 The conditions for success depend on the context of the educational establishment to create a learning organization based on Sappaya Dharma principles.

Keywords:

Model, Learning Organization Envelopment, Sappaya Dhamma

A Model of Conflict Management in Personnel Administration based on Buddhism in Schools under Office of Secondary Educational Service Area, Bangkok

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Abstract:--

This research article aimed to propose a model of conflict management in personnel administration based on Buddhism in schools under Office of Secondary Educational Service Area, Bangkok. Mixed methods research was used and there were three research steps: Step 1 was to study the condition of conflict management in personnel administration in educational institutions. A questionnaire was used to collect 210 secondary school administrators. Data were statistically analyzed including percentage, mean, and standard deviation. Step 2: Developing a model by interviewing 10 key informants with a semi-structured interview. The third step was to propose a model using a focus group discussion of 8 experts and data were analyzed by content analysis. Results of the study showed that a model of conflict management in personnel administration based on Buddhism in schools under Office of Secondary Educational Service Area, Bangkok consisted of 1) principles, 2) objectives, 3) operation system, and 4) administrative process which were (1) personnel administration of conflict management in 5 areas: manpower planning, nomination and appointment, performance enhancement, discipline and discipline preservation, resignation from government service, (2) Conflict management in personnel administration based on Buddhist principles, which is the Four Noble Truths, which are suitable principles for conflicts in personnel administration in educational institutions, consisting of: (1) Dukkha, problem determination, (2) Samudaya, analysis of the root cause of the problem (3) Nirodha, setting goals, (4) Magga, determining the solution to the problem.

Keywords:

Model, Conflict Management, Personnel Administration, Buddhism, Schools.

The Power of UpToDate Database System on Learning of Evidence Based Medicine

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Abstract:--

This study was conducted to explore the power of UpToDate as decision support system in the top level of evidence for EBM practice. The purpose of study is to know the perception of student after training how to apply EBM using UpToDate to solve the problem in clinical setting during clerkship rotation. This study used posttest experimental design comparing group having a training and group having no training as control group. The subjects are 39 medical students at clinical phase for the first encounter on clerkship guidance as group having a training compared to another group from staff of medical faculty Islamic University of Indonesia. The training consists of the EBM component, 5 steps for EBM practice, the level of evidence and the grade of recommendation, 5S of pyramid of evidence, how to use UpToDate from create account, how to use VPN to access UpToDate, how to activate the account, how search the evidence according the purpose of health care from diagnosis, prevention, prognosis, etiology and therapy and how to translate in Bahasa and to save the file in pdf as well as how to check of drug interaction. In addition, the material of training provided easy guidance how to share the file dan export to power point as well as patient information content. All participant has given good response by getting much more benefit after training in term of satisfaction and familiarity with UpToDate.

Factors Affecting Media Literacy during COVID-19 Pandemic of High Secondary School Students in Pittsburgh City, Pennsylvania, USA

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Prasak Santiparp, lecturer of Mahidol university

Abstract:--

Currently, social media use is very popular. Hence, social media literacy is important. Self-directed is learning process that improves media literacy. The purpose of this study was to identify factors affecting social media literacy of high secondary school students during COVID-19 pandemic in Pittsburgh city, Pennsylvania, USA. The cross-sectional survey by quantitative research was conducted. The sample sized was calculated and proportional stratified randomly selected 160 students. The instrument to identify affecting factors was questionnaire which tested for validity and reliability by IOC and Cronbach's alpha, the results were more than 0.5 and 0.73 respectively. The descriptive statistics and multiple linear regression by forward stepwise were applied. The findings are as follow: the social media literacy and self-directed learning of students are high level. The factors affecting social media literacy are self-directed learning, learning media literacy from school and parents' suggestions. This model can predict social media literacy of high secondary school students 45.4%. The recommends were the school should promote self-directed learning and have course of media literacy for students. The family should control and suggest their children to use social media.

Key words:

Covid-19/ Media Literacy/ Social Media/ Student/ Factor

Teachers` Competence and Skills` Readiness in Facing the Impact of Industry 4.0 on Mathematics Education

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Abstract:--

This sequential exploratory study describes the mathematics teachers` competence and skills readiness towards Education 4.0 which is the reflection of Fourth Industrial Revolution on education. Furthermore, it also investigates the relationship of teachers` competence and skills readiness towards education 4.0. For qualitative phase, five (5) experts shared their insights and perspectives about how they view the competence and skills readiness of mathematics teachers towards education 4.0. For quantitative phase, data were obtained from a sample of 500 mathematics teachers from selected Elementary Schools; Junior and Senior High Schools; and State Universities and Colleges (SUCs) from Central Luzon, Philippines during the second semester of S.Y. 2019-2020. Qualitative results revealed that the competence of teachers in Mathematics Education 4.0 (4ME) can be classified according to their technological-pedagogical-content competence related to TPACK framework developed by previous authors. Skills readiness were categorized as technological and digital skills; professional skills; and lifelong learning and personal skills readiness. Quantitative findings showed that mathematics teachers have low levels of competence towards education 4.0 in terms of technological-pedagogical competence which is their ability to integrate advanced technologies in their mathematics instruction and employ new strategies relevant to the needs of Education 4.0. This was assessed through the instrument called Technological-Pedagogical-Content Competence (TPACC) Scale developed through qualitative data analysis and existing related literature and studies. Similarly, mathematics teachers have low level of skills readiness on advanced technologies such as robotics, artificial intelligence, interactive system, virtual and augmented realities, and learning management system. Further, significant relationship exists between teachers` competence and skills readiness towards Mathematics Education 4.0. Lastly, teachers` viewpoints about their suggestions and recommendations in enhancing their competence and skills readiness were enhancement of educational facilities via procurement of ICT equipment and building infrastructure and conduct of more trainings, seminars, and workshops relevant to Education 4.0.

Key words:

Competence, Skills Readiness, Mathematics Education 4.0, Industry 4.0

A Model of Teaching Management Empowerment Process of Teachers in Phrapariyattidhamma School, Pali Division

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Abstract:--

The purposes of this research were 1) to study the condition of power characteristics in teaching and learning management of teachers in the Office of Religious Studies Sanam Luang Pali Department, 2) to develop a model of the process of enhancing the power characteristics, and 3) to propose a model of the process of enhancing the power characteristics. Mixed methods research was used in the study through documents, in-depth interview and focus group discussions. The data were collected from 100 samples Pali teaching by questionnaires, and then analyzed by LISREL program. Results indicated that 1) Factors in the process of empowerment characteristics and factors of the teacher profession, It had a statistically significant positive direct effect on teachers' teaching and learning management. 2) The model of the process of enhancing the power characteristics found that it is in harmony with the empirical data structure equation. 3) Component weights were used to determine the observable variable influence of the factor power attributes leading to success. It was found that willing to act had the most component weight, and hardy to do had the least component weight. The success factor must be willing to do so is a love of teaching, have the spirit of being a teacher. Therefore, it is a factor affecting the process of enhancing the power of teaching and learning of teachers in the School of Religious Studies, Sanam Luang Pali Department where willingness helps to have more powerful attributes. The other variables according to the model, it is an element that will increase the power attribute as well. In the model, it could assist and support the capacity in Buddhist propagation as well.

Key words:

Model of Teaching, Empowerment, Pali

A Model of School Well-Being Promotion based on Buddhism for Schools under Office of Samutprakan Primary Educational Service Area 2

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Abstract:--

This research article aimed to propose a model of school well-being promotion based on Buddhism for schools under Office of Samutprakan Primary Educational Service Area 2. There are three research steps: Step 1: Study the current state of health promotion in educational institutions. A questionnaire was used for 317 primary school administrators and teachers. The data were analyzed by statistical analysis including percentage, mean and standard deviation. The second step was a model development by using interview with 10 key informants using semi-structure interview form. The third step was to propose a model using a focus group discussion of 8 experts and data were analyzed by content analysis. Results of the study showed that a model of school well-being promotion based on Buddhism for schools under Office of Samutprakan Primary Educational Service Area 2 consisted of 1) Principles, 2) Objectives, 3) Promotion process consisted of (1) Promoting school health in educational institutions in 5 aspects: happy learners; happy school, happy environment, happy family, and happy community, (2) promoting a school of well-being according to the Buddhist Dharma which called Bhavana IV (physical, social, mental, and intellectual) and 4) model assessment.

Key words:

Model, School Well- Being Promotion, Buddhism, Schools.

Model of Teaching Management on Yonisomanasikara Thinking Skills for Primary Education Students by DLTV

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Abstract:--

This research article aimed to propose a model of teaching management on Yonisomanasikara thinking skills for primary education students by Distance Learning Television (DLTV). Mixed methods research with three research steps was designed: Step 1: Study the condition of teaching and learning management by using questionnaires to collected data from 217 administrators and teachers in primary schools. The data were analyzed using statistics such as percentage, mean and standard deviation. Step 2 develop model by interview 10 key informants using semi-structured interview form. The third step was to propose a model using focus group discussion of 8 experts. Data were analyzed by content analysis. Results of the study showed that a model of teaching management on Yonisomanasikara thinking skills for primary education students by Distance Learning Television (DLTV) consists of 1) principles, 2) objectives, 3) management process which were (1) teaching and learning through Distance Learning Television 3 aspects which were management, teaching management, and quality of learners, (2) Teaching and learning of Yonisomanasikan thinking skills for primary school students, it is a thought that relies on an intellectual process. The main principle is to use consciousness to work with intelligence in the thinking process, and 4) evaluation.

Key words:

Teaching Management, Yonisomanasikara Thinking Skills, Primary Education Students, Distance Learning Television (DLTV)

Model of Self-management based on Gharavasa Dhamma for School Administrators under Office of Phranakhon Si Ayutthaya Secondary Educational Service Area 3

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Abstract:--

This research article aimed to propose a model of self-management based on Gharavasa Dhamma for school administrators under Office of Phranakhon Si Ayutthaya Secondary Educational Service Area 3. Mixed methods research was designed and there are three research steps: Step 1 study the condition of the administrators of the educational institutions by using questionnaires to collect from 306 teachers in secondary schools. The data were statistically analyzed such as percentage, mean and standard deviation. Step 2 developing a model by interviewing 10 key informants with a semi-structured interview form. The third step was to propose a model by using focus group discussion of 8 experts. Data were analyzed by content analysis. The results of the study showed that a model of self-management based on Gharavasa Dhamma for school administrators under Office of Phranakhon Si Ayutthaya Secondary Educational Service Area 3 consisted of 1) principles, 2) objectives, 3) administrative process, self-administration, which is the administrative principle that school administrators have applied to the current administration, namely (1) self-reliance, diligence, and responsibility, and (2) saving and conserve, (3) maintaining discipline, respecting the law, (4) observing religious virtues, (5) being loyal to the nation, religion, monarch, and self-administration according to Gharavasa Dhamma principles that are suitable for integration with self-administration that lead to unity and effectiveness of educational establishments in administration, namely: (1) honesty and sincerity to each other, (2) self-cultivation, (3) tolerance, (4) sacrifice, and 4) evaluation.

Key words:

Model, Self-management, Gharavasa Dhamma, School Administrators

Development of Knowledge Management Process based on Buddhhadhamma in Schools under Office of Secondary Educational Service Area 1

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Abstract:--

The objective of this research were to study the condition and problems of knowledge management according to Buddhist principles, to develop the process of knowledge management according to Buddhist principles, and to propose the process of knowledge management according to Buddhist principles in educational institutions under the Office of Secondary Education Service Area 1. Mixed methods research was used by integrating documented research, quantitative research and qualitative research, which included studying, analyzing and collecting 6 aspects of Buddhist knowledge management from asking for opinions of teachers and educational personnel in educational institutions under the Secondary Educational Service Area Office Region 1, and data collected from 375 samples. Interviewed and focus group discussion were used with the group of secondary school administrators, expert in knowledge management and Buddhist teachings and experts in educational institution administration with 10 experts. Statistics used were percentage, mean, standard deviation, qualitative data was analyzed by using content analysis. Results revealed that 1) knowledge management according to Buddhhadharma principles in 6 aspects from the opinions of teachers and educational personnel were shown at a high level. 2) Developing knowledge management processes based on Buddhhadhamma, consisting of 6 sections which are (1) knowledge assignment, (2) knowledge creation and acquisition, (3) systematic management of the collection of knowledge, (4) access to knowledge, (5) knowledge sharing, and (6) learning. 3) the process of knowledge management according to Buddhist principles in educational institutions under the Office of Secondary Education Service Area 1 was proposed, it was divided into 6 processes as follows: (1) knowledge determination, the 4 principles of power were applied in determining vision, mission and goals at a high level. (2) Creating and seeking knowledge, the dharma is used to find knowledge both internally and externally both are existing knowledge and knowledge to be used at a high level. (3) The principles of Dharma are applied in determining the systematic way of storing knowledge for use both now and in the future at a high level. (4) Access to knowledge principles are established how to apply knowledge internally and externally systematically at a high level. (5) Knowledge sharing, there is a focus on the benefits of knowledge to be used for the benefit of both internal departments and external benefits, and (6) learning with easy access to knowledge convenient learning at a high level.

Keywords:

Knowledge management process, Knowledge management, Buddhist principles

A Model of Desirable Characteristics Development According to Kalyanamitta Principles for School Administrators under Office of Secondary Educational Service Area 1

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Abstract:--

The objectives of this research were 1) to study the condition and problem of the characteristics that depend on Kalyanamitta Principles, 2) to develop a model of desirable attributes according to Kalyanamitta Principles, and 3) to propose a model of desirable characteristics development according to Kalyanamitta principles for school administrators under Office of Secondary Educational Service Area 1. Mixed methods research was used integrated between documented research, quantitative research, and qualitative research. Data were collected on desirable characteristics development according to Kalyanamitta principles by asking for opinions of administrators and educational personnel in educational institutions under the Secondary Educational Service Area Office, Region 1, 357 samples, and were interviewed and discussed with 10 experts of secondary school administrators, expert in Psychology in terms of Buddhism and qualified persons in educational institution administration. The statistics used were the percentage, mean, and standard deviation and qualitative data was analyzed by content analysis. Research results revealed that 1) the condition and problem of the characteristics that depend on Kalyanamitta Principles overall 5 aspects found that the opinions of administrators and educational personnel was at a high level. 2) A model of desirable attributes according to Kalyanamitta principles consisted of 5 aspects which are 1) personality, 2) morality, ethics, 3) knowledge and competence, 4) human relations and 5) leadership. 3) A model of desirable characteristics development according to Kalyanamitta principles for school administrators under Office of Secondary Educational Service Area 1 divided into 4 parts. Part 1, introduction is the environment both inside and outside the school and new principles and methods concerning five characteristics. The objectives are desirable characteristics of applying the principle of good friend to the person involved. Part 2, the model is the work system such as the strategy for developing desirable characteristics according to Kalyanamitta principles consisting of 5 aspects: 1) personality aspect, 2) morality and ethics, 3) knowledge and competence, 4) human relations, and 5) leadership. Part 3, the implementation process is the desirable characteristics of the application of the five aspects integrated with Kalyanamitta principles, together with the decision-making process in implementing the process of developing desirable characteristics such to be used in educational institutions based on Kalyanamitta principles. Part 4, the conditions for success depend on the context of the educational institution such as the curriculum, vision, mission and policy of the educational institution administrators in the development of desirable characteristics according to Kalyanamitta principles.

Keywords:

Desirable Characteristics, Kalyanamitta Principles, School Administrators

Teaching and Learning Management Process in Social Studies, Religion and Culture Subject Groups based on the Buddha's Teaching Methods for Teacher-Monks in Schools under Office of Primary Educational Service Area

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Abstract:--

The objectives of this research were to study the teaching and learning management conditions in Social Studies, Religion, and Culture subject group; to develop teaching and learning management in Social Studies, Religion and Culture subject group based on Buddha's teaching methods; and to propose the teaching and learning process in Social Studies, Religion, and Culture subject group based on the Buddha's teaching methods for teacher-monks in schools under Office of Primary Educational Service Area. Mixed methods research was designed by using documentary research, quantitative research and qualitative research. Data were collected in 5 aspects of teaching and learning management processes; Social Studies, Religion and Culture Subject Group from primary school teachers under the Samut Prakan Primary Educational Service Area Office Region 1, and from 327 samples. Interviewed and focus group discussion with the primary school administrators, expert in teaching and learning, expert in the subject group of social studies, religion and culture, moral teachings, and 10 Buddhist experts. The statistics used were the percentage, mean, and standard deviation whereas qualitative data was analyzed by content analysis. Results of the research found that 1) teaching and learning management conditions in Social studies, religion and culture subject group of monks teaching morality in schools, the teachers had overall opinions on 5 aspects at a high level. 2) Develop the teaching and learning management of social studies subjects, religions and cultures based on the Buddha's teaching methods, consisting of principles, aims, methods, and teaching and learning processes. 3) The teaching and learning process in Social Studies, Religion, and Culture subject group based on the Buddha's teaching methods for teacher-monks in schools under Office of Primary Educational Service Area consisted of: (1) principles, which are the process of teaching and learning in 5 aspects and teaching with the four Noble Truth. (2) The aim is the goal of developing skills in 3 areas, the importance of social studies subject groups, religion and culture; the duty of the monks to teach morality that society expects in the cultivation of morals and ethics. (3) The method is the teaching and learning process in the 21st century; and (4) the process is the teaching and learning process in 5 aspects, the 5 subject matter and standards of learning, and the process of teaching and learning with the four Noble Truths.

Keywords:

Teaching and learning process, Social studies, religion and culture subject groups, Buddhist methods

A Model of Leadership Development of Administrative Monks in the Central region Sangha Administration according to the Buddhist Reform Plan

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Abstract:--

The purposes of this research were 1) to study characteristics of a model of leadership development of administrative monks in the central region Sangha Administration according the Buddhist Reform Plan, 2) to study process of a model of leadership development of administrative monks in the central region Sangha Administration according the Buddhist Reform Plan, and 3) to propose a model of leadership development of administrative monks in the central region Sangha Administration according the Buddhist Reform Plan. Content analysis was used to analyze data according to opinion as follow the result all 7 parts were 1) Government, 2) Educational, 3) Education for Housing, 4) Propagation, 5) Unities, 6) Unity Housing, 7) Development center of Buddhmomtol. The instruments used for research were questionnaires and interview form. Quantitative data were analyzed by using mean, standard deviation, and then classify benchmark to be 5 levels as the most level, more, medium, less, and least as set. Results indicated that 1) General analyze from questions classify by age year education (Dhamma sector) and education for (Pali sector) found that Age, mostly had 31-40 years old at 31.00 percent, and next between 41-50 years old at 22.00 percent. Year, mostly had 11-15 years at 31.00 percent, next had 6-10 persons at 29 percent. Education (Dhamma sector), mostly had Dhamma sector grade 3 revel, at 74.00 percent, next less Dhamma sector grade 2 at 18.00 percent. Education (Pali sector), mostly had Pali sector grade (4-6 levels) at 50.00 percent, next level (1-2 levels, 3 level) at 35.00 percent. 2) The level of a model of leadership development of administrative monks in the central region Sangha Administration according the Buddhist Reform Plan in overall had shown in more level as ($\bar{x} = 4.18$, S.D. = 0.342). Therefore, when consider by each part found that the opinion of a model of leadership development of administrative monks in the central region Sangha Administration had shown the most level was Government as ($\bar{x} = 4.50$, S.D. = 0.452), next was unity housing that showed in more level at ($\bar{x} = 4.35$, S.D. = 0.314). 3) A model of leadership development of administrative monks in the central region Sangha Administration according the Buddhist Reform Plan was proposed, and body of knowledge from this research found that (1) recognize the condition of Government from Top to Down according to a model of leadership development of administrative monks in the central region Sangha Administration according the Buddhist Reform Plan that start reform from B.E. 2561. (2) To receive important data of governors monks must be have condition for leadership at all, and 3) To receive good cultural according to a model of leadership development of administrative monks in the central region Sangha Administration according the Buddhist Reform Plan based on behalf of good disciplinary.

Keywords:

Leadership Development, Administrative Monks, Buddhist Reform Plan.

Strategy of Online Teaching Management in Schools under Office of Secondary Educational Service Area 4

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Abstract:--

The purposes of this research were 1) to study the condition of teaching and learning management through the online system in educational institutions, 2) to develop strategies, and 3) to propose strategies for teaching and learning through online systems in educational institutions. The mixed research methodology was used in the study. The quantitative data were collected by questionnaires from 343 samples and the qualitative data were collected by in-depth interviews with 10 key-informants and by focus group discussions with 9 key-informants. The tools used in the data analysis were mean and standard deviation. Results indicated that 1) The condition of teaching and learning through the online system in educational institutions in general, it was found that there were opinions on the general condition at a high level. When considering each aspect, it was found that the evaluation aspect has the highest level of strategy context or teaching environment has the lowest level of strategy. 2) Strategies for teaching and learning through the online system in educational institutions consist of: 1. Preparation the advantage of online teaching is that the lessons offered online are generally well planned and delivered consistently. 2. Teaching operations, The effectiveness of online teaching and learning also depends mainly on the teachers who act behind the learners' learning. 3. Management, Online teaching takes place without any restrictions on time and place. 4. Learning assessment, Online tutors must be aware of and take into account the assessment strategies. 3) The experts have reviewed the strategies of teaching and learning through online systems in educational institutions. It was found that the appropriateness and feasibility of using in order to manage teaching and learning through the online system in educational institutions.

Keywords:

Strategy of Online , Teaching, Educational

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