



**INTERNATIONAL CONFERENCE ON  
ENGINEERING, SOCIAL- SCIENCES,  
AND HUMANITIES  
IC-ESSU - 2021**

**26<sup>TH</sup> - 27<sup>TH</sup> MAY 2021**



**PHILIPPINES**



**ORGANIZED BY**

**EASTERN SAMAR STATE UNIVERSITY (ESSU), PHILIPPINES**

**IN ASSOCIATION WITH**

**INSTITUTE FOR ENGINEERING RESEARCH  
AND PUBLICATION (IFERP)**

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# IC-ESSU-2021

International Conference on  
Engineering, Social- Sciences and Humanities  
(Virtual Conference)

**Eastern Samar State University -  
Borongan Campus, Philippines  
26<sup>th</sup> - 27<sup>th</sup> May, 2021**

Organized by:  
Eastern Samar State University (ESSU), Philippines  
&  
Institute For Engineering Research and Publication [IFERP]





## Rudra Bhanu Satpathy

Chief Executive Officer

Institute For Engineering Research and Publication.

On behalf of *Institute For Engineering Research and Publications (IFERP)* and in association with *Eastern Samar State University (ESSU)*, Philippines. I am delighted to welcome all the delegates and participants around the globe to *Eastern Samar State University (ESSU), Philippines* for the “*International Conference on Engineering, Social- Sciences and Humanities (IC-ESSU-2021)*” Which will take place from *26<sup>th</sup> - 27<sup>th</sup> May'2021*

It will be a great pleasure to join 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 & ESSU**) and all the people involved for their efforts in organizing the event and successfully conducting the International Conference and wish all the delegates and participants a very pleasant stay at *Philippines*

Sincerely,



**Rudra Bhanu Satpathy**



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## Preface

The *International Conference on Engineering, Social- Sciences and Humanities (IC-ESSU-2021)* is being organized by *Eastern Samar State University (ESSU), Philippines* in Association with *IFERP-Institute for Engineering Research and Publications on the 26<sup>th</sup> – 27<sup>th</sup> May, 2021*.

The “*International Conference on Engineering, Social- Sciences and Humanities*” was a notable event which brings Academia, Researchers, Engineers, Industry experts and Students together.

The purpose of this conference is to discuss applications and development in area of “**Engineering, Social- Sciences and Humanities**” which were given International values by *Institute for Engineering Research and Publication (IFERP)*.

The International Conference attracted over 180 submissions. Through rigorous peer reviews 55 high quality papers were recommended by the Committee. The Conference aptly focuses on the tools and techniques for the developments on current technology.

We are indebted to the efforts of all the reviewers who undoubtedly have raised the quality of the proceedings. We are earnestly thankful to all the authors who have contributed their research works to the conference. We thank our Management for their wholehearted support and encouragement. We thank our Principal for his continuous guidance. We are also thankful for the cooperative advice from our advisory Chairs and Co-Chairs. We thank all the members of our local organizing Committee, National and International Advisory Committees.

**IC-ESSU -2021**



## Message from President



**Dr. Andres C. Pagatpatan, Jr.**

President,  
Eastern Samar State University

Research is an indelible part of the society as a mechanism in generating knowledge, discovery and interpretation of facts, revision of accepted theories and laws, practical applications, and capacity building. Hence, we are here today for the International Conference on Engineering, Social Sciences, and Humanities, fittingly called, IC-ESSU. Thank you for joining us in this crusade for inquiry and discovery.

To our eminent speakers and delegates who have come from the region, the Philippines, and the world, I bid you a very warm welcome to Eastern Samar, of course since you are not here physically attending such event due to the COVID-induced pandemic, we will satisfy your optics, virtually, with the beauty of East.

We have a significant number of participants today from the different parts of the globe which makes our conference, a truly international one.

The Eastern Samar State University, since 1960, has been true to its four pillars of function which are instruction, research, extension, and production. For over the years it has made a tumultuous impact in the field of research locally and internationally. The university, takes pride with its competent roster of quality research makers and research enthusiasts who have been able to present on various conference and fora, as well as publish work on international journals. This feat is truly inspiring and motivating which fuels our desire to provide research-based information to the world.

This mission of the University is equally shared by Institute for engineering Research and Publication (IFERP). Thankfully, we were able to create a fusion from such renowned organization and be a part of their mission to work as wizards of science and defenders of the Earth.

IFERP is one of the leading publishers of research articles in its high-quality peer reviewed journals and magazines. It is one of world's largest non-profitable professional associations operating under Technoarete Research and Development Association (TRADA)



meant for research and development. It is a supreme organization which brought sustainable development and technical revolution in the field of Engineering, science, and technology.

With this, the advocacy of ESSU and IFERP to connect research enthusiasts, exchange global innovations, and bridge the gap between academicians and researchers has finally come to unfold through this conference.

I would like to thank the people behind this ambitious event for coming up with such activity. Your love for research is impeccable and may I congratulate you in advance for a job successfully well done.

To the scholars and academicians-

I see an eventful two-day conference.

I see a forum where innovations are supported.

I see a forum where research interests are developed.

I see an array of mutual interest ready to ignite.

Welcome to IC-ESSU!

Thank you

**IC-ESSU-2021**

*International Conference on  
Engineering, Social- Sciences and  
Humanities*

**Keynote Speakers**



## **Dr. Lampong Klomkul**

Director for Research

Information and Academic Services Division, ASEAN Studies Centre,

Mahachulalongkornrajavidyalaya University,

Thailand

### **MESSAGE**

I would like to thank to ICESU-2021 Organizing Committee & Institute for Engineering Research and Publication (IFERP) for inviting me as a keynote speaker with the emerging topic. I am believing “1st International Conference on Engineering, Social- Sciences and Humanities (IC-ESSU)” will give a lot of benefit to the participants in discussing on latest finding in engineering, social-sciences and humanities. I am particularly happy to be present in this conference and to exchange views and share experiences with participants, colleagues and friends, representing my Universities and research group together with members of relevant international participants. I would like to welcome you to this conference and look forward to your participation in ICESU-2021 that is going to be held on 26<sup>th</sup> & 27<sup>th</sup> May 2021 at Easter Samar State University (ESSU) - Borongan Campus, Philippines.

Thanks and Regards

**Dr. Lampong Klomkul**



## **Dr. Ramil T. Uy**

Senior Science Research Specialist and Center manager of S&T Human Resource Development,

Promotion, and Information Center

DOST REGION VIII, Palo, Leyte, Philippines

### **MESSAGE**

It is my great pleasure to welcome you to the very first International Conference on Engineering, Social- Sciences, and Humanities here in Eastern Samar State University, Borongan, Eastern Samar. The Department of Science and Technology Regional Office VIII is very grateful to the ESSU for hosting and taking the initiative to conduct this international conference, and to the Institute for Engineering Research and Publication for the tremendous support and cooperation in making this event possible.

With the 17 Sustainable Development Goals of the United Nations, the 17th Goal: Partnerships for the Goal, is vital for the achievement of those goals for a developing nation. With that, International Conferences such as this, is a good avenue to bridge gaps, build partnerships and raise commitments in helping and creating a holistic approach to improve each other's lives.

As the assigned agency tasked for spearheading the Scientific, Technological and Innovative Activities for socio-economic development in Eastern Visayas, DOST 8 believe that STI, Engineering and R and D are the answers in alleviating poverty and achieve progress. Some of our progressive Asian neighbors: Japan, Korea, Singapore, have shown to us that by investing on research and development, Grass-root innovations and Advance engineering for nation building, progress will definitely follow.

This two-day conference will provide avenue for researches on engineering, social-sciences, humanities and other related fields to showcase their respective state-of-the-art advancements. Various researchers, delegates and scholars will have an incredible chance to interact with each other and share their experience and knowledge on different applications of technology that is vital for development and progress. Local and international participants will have the chance to interact with leading experts on the recent challenges in scientific researches, advancement of technologies and associated areas. Similarly, leading researchers can share their incredible findings, best practices, tacit knowledge and tools they use to achieve better results.

This activity is for all of us, hence, we all must generate as much knowledge as possible, get as many experience as possible and know that enjoying while learning is possible. Once again, welcome to the first International Conference on Engineering, Social- Sciences, and Humanities and welcome to the beautiful Eastern Visayas.

Thanks and Regards

**Dr. RAMIL T. UY**



**Prof. Dr. Franco Gandolfi**

Chief Executive Officer, TAG West Africa,  
Professor, Georgetown University, Washington DC,  
USA

**MESSAGE**

I am looking forward with much excitement to welcoming you to the first-ever virtual conference of ICESSU. While I deeply regret that the pandemic prevents us from holding the conference in the Philippines, I am excited about the opportunities of holding an innovative virtual conference. I am convinced that the conference will stimulate scientists, academicians, practitioners, and students from around the world to present innovative and culturally significant research in their respective fields. I am certain that all of you will find this conference stimulating, rewarding, and meaningful.

Thanks and Regards

**Prof. Dr. Franco Gandolfi**



# IC-ESSU -2021

## *International Conference on Engineering, Social- Sciences and Humanities*

*Eastern Samar State University - Borongan Campus, Philippines  
26<sup>th</sup> - 27<sup>th</sup> May, 2021*

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**IC-ESSU -2021**

**International Conference on  
Engineering, Social- Sciences and  
Humanities  
(Virtual Conference)**

**Philippines  
26<sup>th</sup> - 27<sup>th</sup> May, 2021**

# **ABSTRACTS**

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**IC-ESSU-2021**

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## A Study of the Quality of Scholastic Aptitude Test by Applying Modern Test Theories

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### ***Abstract:--***

The objective of this research was to study the quality of the scholastic aptitude test by applying modern test theories through Item Response Theory, test parameters, reliability, and differential item functioning. The secondary data were collected from the SWUSAT Test Development Project 2014, which consists of a test for all 4 subjects: Verbal Factor, Number Factor, Reasoning Factor and Spatial Factor. The data analysis was divided into 3 steps as follows: Step 1: Data preparation according to the studied factors, the researcher performed the analysis of the basic statistics of the data by analyzing the preliminary data with descriptive statistics, i.e. frequency, percentage. Step 2: Analyze test parameters using a 2-parameter test response model based on parameters, discriminant power (a), difficulty (b) parameter, and reliability. Step 3: Analysis of data with differential item functioning.

The results of the research were as follows:

The results of the analysis of the individual parameters of the 4-subject aptitude test with the 2-parameter test response analysis model were determined from the discriminant power parameter (a) and the difficulty parameter. (b) When considering the results of the course analysis, it was found that all subjects had a predominantly number of tests with a parameter that met the quality criteria, including a relatively high reliability level.

The results of analysis of the differential item functioning and the SWUSAT test, which measures Verbal Factor, Number Factor, Reasoning Factor and Spatial Factor. The difference of the test was in the range of 6.67% - 43.33, with two tests having a number of questions that performed differently, with males being more likely to get the correct answers than females, while the other two had the same number of questions. And all tests performed at a low level of different functions.

### ***Index Terms***

Aptitude Test, Modern Test Theories

## Social Responsibility Practices of Small and Medium Enterprises (SMEs) in the province of Bukidnon

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***Abstract:--***

The purpose of this study was to determine the social responsibility practices and the significant difference in the 393 small and medium enterprises (SMEs) in the Province of Bukidnon. The enterprises were grouped by classifications, business organizations, and business types. The study used descriptive survey method, questionnaire, percentage, mean, t-test, and ANOVA. Results showed that most of the enterprises are small in the category with ten years and below business experience. Most are sole proprietorship and involved in the business of retailing. Results revealed that there is a high level of social responsibility practices in terms of economic, legal, ethical, discretionary/philanthropic, and environmental aspects. The results showed that there is no significant difference in the level of compliance to social responsibility practices for small and medium enterprises by classification and by business type. However, the study yielded a significant difference in social responsibility practices when analyzed by business organizations. Furthermore, this study recommends that small and medium enterprises should integrate social responsibility in all phases of their business operation that will improve the quality of life of the workforce and their families, the welfare of the community, and the well-being of society.

***Keywords:***

small and medium enterprises, social responsibility

## Effect of Storage Conditions on the Migration Characteristics of Benzophenone in Paper- Based Food Packaging

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### ***Abstract:--***

The study has developed migration profiles of benzophenone in different types of paper-based food packaging. The levels of benzophenone were determined at different periods of time and temperature. The packaging samples were subjected to three (3) different temperatures stored in controlled environment over time after which extraction was performed. These extracts analysed with gas chromatograph mass spectrometer (GCMS) using the in-house method then modified and adapted from an analytical laboratory of the University of Zaragoza in Spain. All samples analyzed showed concentration of benzophenone that are way below the specific migration limit of 0.6mg/Kg as per European legislation directive 2002/72/EC.

# Soil Characterization Based on Physical and Mechanical Properties of Pliocene-Pleistocene Geology in Bukidnon Philippines

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***Abstract:--***

Soil characterization is important since it gives an idea of the state of soil in the field. Moreover, Philippine geology map shows a vast area of Pliocene-Pleistocene classification, where until now no up to limited study presented the soil characteristics of this type of geology. These soil characteristics are essential for engineering purposes like the design, land development, slope stability, disaster risk mitigation, stabilization and other relevant utilization. In addition, it identifies if the soil in the site is problematic like being expansive or collapsible. In this study the soil from thirty sampling locations in the two barangays of Kibawe, Bukidnon with Pliocene-Pleistocene geology is characterized based on their physical and mechanical properties. The results showed that the soil in this geology is classified as fine-grained soil with other locations as gap-graded. The plasticity index (PI) varies from 14.11% - 71.28%, which indicates medium to very high plasticity. The liquidity index (LI) of the soil varies from 0.12 to 0.96 which means that the soils at its in-situ water content are in the plastic state of intermediate strength and can be deformed like a plastic material. Based on USCS, there are four soil types which CH, MH, CL and ML while based on AASHTO soil classification system it belongs to A-7-5 and A-7-6 groups with moderate and high plasticity, respectively. Majority of the soils under this geology are highly expansive which have a high tendency to swell. On the other hand, it has 25 locations that are non-collapsible soil and only 5 are collapsible. In terms of cohesion-PI relationship, it shows that the cohesion value increases with increasing value of PI. However, friction angle for CL and ML decreases with increasing PI; while friction angle for CH and MH increases with increasing PI. While some laboratory tests are expensive, these results may help estimate the soil properties and shear strength from other locations with the same geology.

***Keywords:***

characterization, mechanical, physical, Pliocene-Pleistocene

## The Representation of Dutch Military Culture in the Costum of Javanese Folk Dance

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***Abstract:--***

The study of Javanese dance, especially in Central Java, has a very diverse wealth, the types of performing arts in Central Java were also greatly influenced by the arrival of Dutch colonialism. An area in South Central Java has a distinctive dance culture called Angguk and Dolalak. Both types of performances have a special character with a style of appearance that visually has an indicator of the influence of the Dutch military culture in the colonial period. This article attempts to present a unique phenomenon of Angguk and Dolalak dishes, especially in the aspects of fashion design and musical instruments. Through a cultural appropriation approach, this article focuses on examining these influences. The influence of the Dutch colonial military was important because the imitative patterns of rural communities were very high. The visual aspect of the Dutch colonial military culture's appearance style was largely absorbed through the absorption of fashion designs and musical instruments. This article is the result of research using ethnocoreological methods. As an ethnocoreology method, it views understanding humanism through the dance. A way to reveal the value of reasonableness in absorption elements and cultural appropriation in the era of colonialism. Through this article, it is hoped that it will reveal the richness of dance culture in Central Java, which was inspired by the Dutch colonial military culture both in terms of absorption and cultural appropriation. In the view of understanding humanism through the dance, the presence of Angguk and Dolalak dances is a significant representation for the portrait of the cultural richness of folk dance in South Central Java.

***Keywords:***

military culture, colonialism, cultural appropriation, performing arts, ethnochoreology



## Quadrant of Change: Phenomenologizing Department Chairs' Leadership and Management Practices

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***Abstract:--***

This phenomenological study intends to capture and articulate department chairs' with the experiences in leadership and management as they are to achieve success and provide global class education for their clients. Using semi-structured in-depth interviews, data was collected and subjected to cool and warm analyses yielding a set of themes and sub-themes that characterize what these department chairs consider to be desirable practices. The resulting "Quadrant of Change of Department Chairs' in Leadership and Management" describes the common practices and the critical incidents which generate the onset experience, and the value conflicts that are observed in the college. This article intends to add to the growing body of research on leadership and management, particularly on the practices of the department chairs. At a practical level, the findings of this study provides valuable resource to assist aspiring chairs to become more proficient in leading and managing people as well as the available resources as academic bureaucrat. Finally, the findings of this study could potentially serve as knowledge-avenue for college deans and directors in choosing department chairs and to develop academic leaders' competencies and skills in decision making.

***Keywords:***

Leadership, Management, Practices, Department Chairs

## Co-oxidation of Monoethanolamine and Propylene Glycol in Supercritical Water

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### ***Abstract:--***

Supercritical water oxidation is a powerful form of destruction for a wide range of hazardous wastes. This study investigates the results of the destruction of monoethanolamine (MEA) by supercritical water oxidation (SCWO), and by using propylene glycol (PG) and isopropyl alcohol (IPA) as co-fuels in the plug flow reactor. Hydrogen peroxide is the oxygen source. All experiments are performed at 25 MPa and a temperature range from 400°C to 525°C. The residence time ranges from 6–14 s. Results are presented in terms of chemical oxygen demand (COD) as a function of time with various process parameters. The effect of temperature, oxidant ratio, and co-fuel ratio are investigated. The findings of all experiments demonstrate the positive effect of temperature on the destruction of MEA, where COD removal is  $\geq 99\%$  at 14 s and 500°C. The effect of PG on the COD removal efficiency is significant when the concentration of PG is increased at 400°C. The addition of PG demonstrates an important improvement at 400°C (more than IPA) because the two hydroxyl groups in PG oxidation enhance the reaction by generating various free radicals. Additionally, nitrogen removal is enhanced in the presence of co-fuel.

### ***Keywords:***

Supercritical water oxidation, nitrogen-containing compounds, co-fuel, monoethanolamine, treatment

## Influence of the Socio-Cultural Context on Children's Coexistence as Perceived by Teachers

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**Quintero Velandia Salomón**, Universidad Norbert Wiener

**Yangali Vicente Judith Soledad**, Universidad Norbert Wiener

### ***Abstract:--***

The research focused on investigating the influence exerted by the socio-cultural context on the coexistence of children in public institutions in the region of Urabá; therefore, it was structured methodologically as a basic research of mixed approach, from the qualitative it was inductive with a hermeneutic phenomenological design and from the quantitative hypothetical deductive with a non-experimental design and a causal correlational level. Fifty-three teachers from eight of the nine non-certified municipalities in the region participated: Arboletes, Carepa, Chigorodó, Murindó, Mutatá, Necoclí, San Juan de Urabá and San Pedro de Urabá in the department of Antioquia to whom the ICSC test (Influence of the Social Context on Coexistence) was applied, elaborated for the study and applied by means of a questionnaire and an in-depth interview adapted for virtuality given the pandemic conditions that forced social distancing, based on the three study variables: sociocultural context, social pedagogy and coexistence, the results indicate that the sociocultural context does influence the coexistence of the children reflecting in the behaviour, therefore, the alternative hypothesis was accepted, the Cronbach's alpha analyses showed a high value of reliability.

### ***Keywords –***

coexistence, social pedagogy, socio-cultural context, family, territory.

# Quality of Service in Hotel Companies, Based On Continuous Improvement and Human Talent Management

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## ***Abstract:--***

The objective of the research was to determine the relationship between continuous improvement and human talent management in hotel companies in the province of Chincha in Peru. The study is an applied, quantitative approach, experimental design, cross-sectional, correlational level, the population consisted of 638 employees of hotel companies in the province of Chincha, Ica region in Peru; registered in the database of the local government, the survey technique and the questionnaire instrument were used. The results obtained indicated that continuous improvement requires the formulation and application of strategies, processes, innovation, implementation and updating of business management tools, given that organisations are constantly changing, with human potential being the most important resource in a company. It was concluded that there is a direct and significant relationship between continuous improvement and human talent management in hotel companies in the province of Chincha, Peru.

## ***Key words:***

Hotel Company, continuous improvement, management, human talent.

## English Language Teaching to Malaysian Male Students

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### ***Abstract:--***

While many female students are diligent in their studies, many male students do not seem to engage with the learning process. This situation cannot be blamed on the maleness of the students, we should find more effective ways to teach these students. There has been a substantial amount of research on male learning preferences and on the global phenomenon of female students outperforming male students. Drawing from this research we suggest practical approaches to teaching English to Malaysian male students that are likely to lead to better results.

### ***Keywords:***

English teaching; Malaysian male learners; motivation.

## Power Consumption of Household Appliances

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***Abstract:--***

Power consumption is one of the most considered factors in buying appliances since it is the barometer of every monthly electric bill. Constant monitoring, awareness, and proper usage of every appliance especially at home provide check and balance; however, it has objectively contributed to positive changes and development. The study assessed the power consumption of household appliances of the residents in Villaba, Leyte, Philippines. The respondents were representative member of each household. The study used a descriptive-survey design. The results revealed that the television set (TV) is the most frequently used with the maximum number of hours in use of forty-four (44) hours, followed by an electric fan with fifty-one (51) hours and then the third is a refrigerator with one hundred five (105) hours in use per week. Based on the findings, it can be concluded that power consumption depends on these factors namely: low voltage, appliance's wattage, power failure, standby power, and user's end. With proper orientation and awareness of the user, the electric bill of each household may be minimized. Thus, a consumer awareness program and further seminars/training be administered to each household or consumer about the power consumption of appliances.

***Keywords:***

consumer awareness program, electric bill, household appliances, power consumption, standby power

# Securing Green IoT Infrastructure Using Blockchain Based Intrusion Detection System: A Survey Perspective

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## ***Abstract:--***

The Internet of Things (IoT) is a new technology that enables exceptional connections between devices in a smart world. Regardless of the numerous benefits provided by IoT-connected devices, they also pose a number of environmental challenges due to their high energy usage, which results in chemical emissions and E-waste. Thus, in order to maximize the benefits of IoT, there is a critical need to shift toward green IoT. On the other hand, cloud computing has been successfully used to provide limitless computational storage and services for a variety of IoT devices via the internet. Unfortunately, security concerns in cloud computing for green IoT are also a concern. Additionally, by enabling a decentralized framework, blockchain technology is impacting many IoT application areas. When paired with blockchain technology, IoT systems can be properly defended against threats and attacks. Motivated by achieving a sustainable environment for IoT and its robustness against threats and attacks, this research presents an overview regarding green IoT technologies and the strategies used to minimize energy consumption in IoT. Additionally, it presents research challenges on security and privacy issues in green IoT and focuses on how to integrate blockchain technologies in Green IoT environment to prevent attacks, and the possible combination of blockchain technology with intrusion detection systems.

## ***Index Terms***

Blockchain, Cloud-computing, Energy efficiency, E-waste, IoT, Intrusion detection system

## Structured Problem Solving, Math Ability and Physics Performance of Engineering Students

**Ester L. Forlales**, College of Engineering and Technology, Romblon State University, Philippines

### ***Abstract:--***

This study focused on the effect of structured problem solving approach and math ability (MA) in Physics performance of engineering students. It determined 1) Students' Physics performance in pre-test and post-test; 2) Effect of students' mathematical ability in Physics performance in pre-test and post-test; and 3) Interaction effect of teaching method and mathematical ability in students' Physics performance in pre-test and post-test. Using quasi-experimental design with non- equivalent control group, four intact Physics classes were randomly assigned as experimental and control. Experimental group were 56 Agricultural Engineering and Civil Engineering students, and control group were 61 Electrical Engineering and Mechanical Engineering students. Both groups were given math proficiency test, pre-test and post-test in Physics. Results showed that structured problem solving approach significantly improved students' Physics performance. Mathematical ability of students had significant effect on understanding physics such that high MA students performed better in problem solving than those with low MA. There was no interaction effect of teaching methods and mathematical ability on Physics performance. It really matters if structured problem solving is considered a fundamental approach in teaching Physics for better learning outcomes. Math ability should be given utmost consideration in Physics instruction.

### ***Index Terms***

instructional approach, math ability, physics performance, structured problem solving



## A Reexamination of the Compliance Behavior of Income Zakat in Kedah, Malaysia

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**Mohammadtahir Cheumar**, Universiti Islam Antarabangsa Sultan Abdul Halim Mu'adzam Shah (UniSHAMS), Malaysia.

**Norhayati Abdullah**, Universiti Islam Antarabangsa Sultan Abdul Halim Mu'adzam Shah (UniSHAMS), Malaysia.

### ***Abstract:--***

Despite the issuance of a religious decree on the compulsory position of zakat on employment income in Malaysia, the compliance behavior of income zakat is still low. Therefore, this study attempts to reexamine the role of attitude, religiosity, and moral obligation on compliance behavior of income zakat in the state of Kedah, Malaysia. The quantitative method using questionnaires is used to determine significant determinants of compliance behavior of income zakat. This study provides empirical evidence that attitude, religiosity, and moral obligation have significant relationships with the compliance behavior of income zakat. This study is hoped to be able to provide conclusive empirical evidence that could be used as guidance for suitable policy and actions by Kedah State Zakat Board to improve zakat collection and management in the future.

### ***Index Terms***

Zakat, Compliance Behavior, Zakat Collection, Zakat Management.

## Burnout Syndrome in the Covid-19 Pandemic and the Virtualization of Education

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**Carmen Rosa Mosquera Murillo**, Universidad Privada Norbert Wiener

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***Abstract:--***

The aim of the research is to determine the relationship between Burnout Syndrome in the framework of the COVID-19 pandemic and the virtualization of education in Colombian official school teachers during the year 2020. The study responds to the mixed approach and sequential design. In its quantitative phase it was deductive-hypothetical, applied, with a non-experimental cross-sectional design, and in its qualitative phase it was inductive, applied with a phenomenological-hermeneutic design. The data collection techniques used were the survey and the interview. The study population consisted of 1093 teachers from official schools in Floridablanca. For the quantitative approach, a non-probabilistic accidental sample of 110 teachers was used, and for the qualitative approach, a non-probabilistic convenience sample of 10 teachers was used. Among the final considerations it can be said that there is an inverse mean correlation between Burnout syndrome and the virtualization of education in this time of the Covid-19 pandemic; it is therefore considered that the effects of the pandemic have maximized the effects of the aforementioned syndrome on educational actors.

***Keywords:***

burnout syndrome, work stress, emotional exhaustion, depersonalization, virtual education.

## Civil Engineering and Sustainable Development Goals (SDGs): Prospects and Challenges in Building Resilient Towns and Cities

**Reynaldo Perez-Ramos**, Romblon State University

***Abstract:--***

Civil engineering plays a very crucial role in achieving the United Nation's Sustainable Development Goals (SDGs) by 2030 towards building our towns and cities into self-sustaining and resilient communities. Civil engineers in particular are key players in society as agents of infrastructure development and environmental protection. The role of civil engineers is paramount in the planning and building our communities to become more resilient to climate change and natural disasters. Thus, there are challenges and problems that civil engineers have to overcome which brought about by rapid urbanization, depletion of natural resources, and environmental degradation.

This paper attempts to recognize the linkages between civil engineering and sustainable development, with respect to the social, economic, ethical, cultural, and environmental challenges that civil engineering professionals are facing today in building a resilient communities. The findings from the study provide a clearer direction for civil engineering professionals to take – engaging and committing themselves to participate and collaborate in infrastructure developmental projects towards high quality outcomes and standards. With technological advancement and innovative solutions, civil engineers should go beyond minimum compliance in helping our communities develop sustainably through better decision-making to get more cost-effective and efficient infrastructures.

# Decorative Arts on Relics in Antique Temples in Binh Duong

**Nguyen Thi Ngoc Diep**, Thu Dau Mot University

***Abstract:--***

Patterns on Vietnamese relics not only show traditional of art values with popular patterns like orchids, daisies, peach blossom, apricot blossom, etc. as well as the powerful Four Holly Beasts( the Dragon, the Liquin, the Turtle and the Fenghuang) which have been stored in lots of textbooks and materials up to now. Therefore, in this paper, the philosophy of traditional values of relics in Binh Duong temples has been detailedly focused and illustrated.

***Index Terms***

Binh Duong temples, Traditionally decorative art, Vietnam relics

## Enhancement and Acceptability Evaluation of the Starting System of a Manually-Cranked Diesel Engine

**Virne B. Dalisay**, Faculty, College of Engineering and Technology, Romblon State University, Odiongan, Romblon

***Abstract:--***

An automatic starting system for a manually-cranked diesel engine was designed and developed using locally available components such as starter motor, ring gear, alternator, battery, and ignition or push button switch.

This study evaluated a comparison between the manually-cranked and automatic starting method regarding starting speed of rotation of the flywheel and time spent to successfully start the diesel engine and the acceptability to the farm machinery operators of the developed system based on system design, gender sensitivity, initial cost, ease of operation, and performance.

The results showed that the average speed of rotation of the flywheel and the time consumed to successfully start the engine using the manually-cranked and the automatic starting system were 156 rpm and 213 rpm, respectively. An indication that the automatic starting design can do better to successfully start the diesel engine.

Further, the user's acceptability evaluation revealed that in terms of system design and gender sensitivity, the level of acceptance is 4.00 "Very good". However, for ease of operation, the level of acceptance is 5.00 "Excellent", while there is an acceptable level of 3.00 "Good" for the cost incurred for the conversion of manual starting diesel engine into electric starting. The enhanced starting system made the starting operation easier and safer for the operator.

## Climate for Creativity and Innovation: Impact on the Sustainability of Multi-Purpose Cooperatives

**Daryl Jane Agbayani-Caballero**, Central Mindanao University, Maramag, Bukidnon, Philippines

***Abstract:--***

Cooperative nowadays are exploring means to guarantee a positive impact on the sustainability of their economic well-being. This industry serves as a powerful tool to alleviate living conditions of the members at the same time sustains economic growth; however, an extremely changing and competitive environment currently challenged this industry. This research work finds its essence through the genuine efforts to contribute knowledge to the current scenario. The purpose of this study is to examine the climate for creativity and innovation's impact on the sustainability of multi-purpose cooperatives. This study employed mixed method research design. The survey conveniently selected a total of 641 cooperative officers among the 75 cooperatives in Bukidnon. The researcher conducted interviews with five officers holding key positions and focus group discussions among 30 members from five cooperatives. The findings show that the climate for creativity and innovation composed of resources, motivation, and exploration has a significant impact on sustainability. Limitations of this study include the proposed indicators of the climate for creativity and innovation which are; Motivation, Resources, and Exploration which were assessed by the conveniently selected cooperative officers of Bukidnon. Over-all the study implies that if multi-purpose cooperatives create a climate for creativity and innovation, sustainability will follow.

***Keywords:***

Sustainability, Creativity, Innovation, Cooperative

# Implications of Tourism on Changed Land Function: In the Context of Sustainable Environment-Based Area Development in the Tourism Village of Canggu, Bali, Indonesia

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## ***Abstract:--***

Cities are essentially centers of growth that continue to develop dynamically. The high population growth followed by development activities has resulted in an increased need for space, especially in areas with high strategic land values, such as tourism areas. The tourism sector is still considered as a stimulator to drive the economy. This is indicated by the direction of the Spatial Plan for the Province of Bali and Badung Regency in Indonesia, where the Canggu Village is directed to be developed as a strategic area for regional tourism and as an urban area. This study will examine spatial development due to the high potential for tourism activities that occur in Canggu Village and its impact on land conversion, especially on agricultural land into built-up areas to be commercialized. The research method was carried out by qualitative methods with a case study in Canggu Tourism Village. The results showed that there was a description of the factors that led to land conversion in Canggu Village due to tourism development, namely based on regulatory factors, factors increasing the carrying capacity and accessibility of tourism and population growth factors. So that to create sustainable development, an environmentally based tourism development strategy is needed, namely by strengthening the quality of tourism activities without damaging nature and the environment.

## ***Keywords***

Tourism, Transfer of Land Functions, Regional Development, Sustainable Environment.

## Public Perception of Biofuel Usage in Sarawak

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**Susalia Mapong Anak Sabarang**, American University of Phnom Penh

**Nur Zaimah Ubaidillah**, Universiti Malaysia Sarawak

### ***Abstract:--***

Biofuels are a source of recycled or waste renewable energy that can help reduce carbon dioxide emissions, through a reduction in the consumption of fossil fuels. Regarding Malaysia, Sarawak is currently one of the region's strongest actors in advocating the transportation sector to adopt and transitioning, whether possible, to biofuels. Unfortunately, this transition is still just at the beginning, with one of the major issues lying in the lack of awareness on biofuels among Sarawak citizens. This paper aims to investigate and report the public perception among Sarawak citizens of biofuel usage in the region, and more specifically, focusing on the degree of consumer attitudes toward biofuels, environmental knowledge, social influence, and perceived behavioural control. The results of this study highlight a positive significant effect of the degree of consumer attitudes toward biofuels on the public perception of them. As for the environmental knowledge, the study reveals its positive relationship with public perception of biofuel usage. From the results, Sarawak citizens frequently make choices based on their current situation, unless they had a positive attitude toward the environment and renewable effects of biofuel use. Further recommendations include deepening the understanding of the potential positive influences that affect public perceptions of biofuels.

### ***Index Terms***

Biofuels, Sarawak, public perception, consumer attitude.



## Localizing the Sustainable Development Goals in the Municipal Level: Local Legislature Initiatives for Thriving Lives and Sustainable Livelihood

**Rexton F. Chakas**, Mountain Province State Polytechnic College

***Abstract:--***

Five years into implementing the 2030 Agenda for Sustainable Development since its inception in 2015, countries like the Philippines have instituted a multi-level approach as a national strategy. It is then imperative to study the municipal councils' efforts to localize the Sustainable Development Goals [SDGs]. The study's main objective is to determine the significant initiatives and measures passed by the Sangguniang Bayan of Bontoc, Mountain Province, to address the thirty-six targets of Sustainable Development Goals 1 (eradicating poverty), 2 (ending hunger), 3 (ensuring health and well-being), and 6 (providing safe water and sanitation) from 2015-2020.

The study utilized the qualitative method where key informant interviews and documentary analysis were employed.

The Sangguniang Bayan enacted thirty-six (36) salient measures. Analyzed in detail, the local legislature's initiatives under SDG 1, 2, 3, and 6 are internally, vertically, and horizontally coherent and synergistic. Under each SDG, there is harmonization and synchronization of initiatives. Moreover, there is coordination, synergy, and contextualization with the laws and regulations by higher authorities. Furthermore, there is horizontal coherence between the measures under one SDG with those of other SDGs. The translation of an international plan like Agenda 30 for Sustainable Development into the local level ensures the sustained improvement of the people's lives.

## Impact of Social Responsibility on the development of Scientific Research

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**Judith Soledad Yangali Vicente**, Norbert Wiener University, Peru.

### ***Abstract:--***

Scientific research is the pillar of science and therefore the aim of every university, as well as the current university policies contemplate the development of an integral university committed to society, which is why within the quality standards University Social Responsibility (USR) is contemplated. In the research, we analysed the differences in the impact of social responsibility on the development of scientific research in Peruvian universities. Although there are several models and theories, as well as instruments to evaluate USR, the study used the questionnaires of [1]Baca et al (2017). The sample obtained is 108 theses corresponding to the periods 2017 to 2020, the design is non-experimental. The study concludes that there are significant differences between the two universities in terms of linking research with USR, and this may be due to factors related to unconnected policies between faculties.

### ***Keywords:***

social responsibility, university, research, social impact.

## Effectiveness of Reading, Writing, Arithmetic (3RS) and Technical Advisory on Livelihood Program Behind Bars

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**Narcisa M. Paz**, Laguna State Polytechnic University

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**Renniza F. Diola**, Laguna State Polytechnic University

### ***Abstract:--***

The initial implementation of this program was first conducted through a request letter from the jail warden asking the assistance of the College of Teacher Education in helping the People Deprived of Liberty (PDL) in terms of literacy in English , in Mathematics, livelihood activities and they also asked for the continuity of the program because according to them, most of the volunteers from different NGOs were not consistently attending their program because of their fear of teaching the PDLs. Based on the results of the over-all evaluation of the program, the participants rate the activity as best with an overall mean rate of 4.00 and their assessment on time allocation and duration of activity is just right. The participants also enhanced their reading, writing, and arithmetic skills. In terms of livelihood skills, most of the participants were highly skilled in paper arts and crafts. Some of them passed the Alternative Learning System (ALS) examination and the inmates develop their self-esteem. Based on the results the researchers concluded that highly significant difference between their performances in reading, writing, and arithmetic before and after the implementation of the program, which determined of its effectiveness and the researchers recommended that this program need to be strengthen up to the extent of proposing livelihood program including PDLs' family for them to support their own financial needs and for them to feel that their belongingness to the community.

### ***Index Terms—***

3Rs Behind Bars, Reading, Writing, Arithmetic, technical advisory, livelihood

## Linking College Learners' Competence in Information and Communication Technology and Learning Styles during the COVID-19 Pandemic

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### ***Abstract:--***

The purpose of the study was to determine the learning styles and Information and Communication Technology Competence of university students in the course of the COVID19 pandemic. It also aims to identify possible associations related to ICT Competence and the students' learning styles. A descriptive and correlational quantitative approach was applied in the study and used a non-probabilistic sample of 686 students in a state university in the Philippines. The results showed that the students' dominant learning style is collaborative and seconded by dependent. This means that university students in the course of the COVID19 pandemic exposed to flexible learning modalities learn best when given opportunities to exchange ideas to small group discussions than large group lectures. However, a significant number of students lack intellectual interest and learn only what is asked of them. Meanwhile, students' ICT skills and attitudes are closely connected to their learning styles. Collaborative learners have a higher level of ICT competence than the other groups. Furthermore, the findings revealed that students' learning styles are strongly linked to their college programs. Other variables, such as ICT-related burnout levels, should be examined to see whether they have a possible mediation impact on ICT competence.

### ***Keywords:***

Learning Styles, ICT Competence, COVID19 Pandemic

## Effectiveness of Module in Understanding the Self to Freshmen Students' Performance

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**Efren R. Dela Paz**, Laguna State Polytechnic University

### ***Abstract:--***

This study aimed to determine the effectiveness of developed module in Understanding the Self to the freshmen students of selected colleges at Laguna State Polytechnic University Los Baños Campus, Los Baños, Laguna. Descriptive evaluative research design was employed in this study. The respondents of the study were the 153 selected freshmen students of the two selected colleges taking up GEC 101 or Understanding the Self during 1st semester A.Y. 2019-2020. The data were analyzed and interpreted through the use of percentage, weighted mean, standard deviation, and t-test of dependent samples. Based on the results the students got low scores in their pretest or before using the module while got high scores in their lesson understanding activities during using the module, and in their posttest or after using the module. Based on the results of this study, the researchers concluded that there is significant difference on the pretest and posttest mean scores of the students in Understanding the Self subject. In line with the results and the conclusion the researchers recommended the continuous utilization of the module for it really helps the students to improve their performance in Understanding the Self subject and they also recommended to conduct quasi experimental study using two groups of students, one will be using the module and the other group will be the conventional approach.

### ***Index Terms***

Understanding the Self, Module, Effectiveness, students' performance

## Level of Vulnerability and Direction for Reducing the Risk of Flood Disaster in Kendari City (Study in Mandonga District, Kendari City-Indonesia)

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### ***Abstract:--***

This study analyzes the level of vulnerability, impact and direction of flood disaster control. The study used a quantitative descriptive design and a survey. The data analysis used was descriptive qualitative and spatial analysis (GIS, namely ArcView 3.2). The results of the study concluded that the flood vulnerability in Mandonga District, Kendari City was categorized as "high". The risk of flood hazard in Mandonga Subdistrict is divided into "high" vulnerability covering an area of 137.02 ha or 31.55% located in Mandonga and Korumba Villages; "Medium" hazard is 79.07 ha or 18.21% in Alolama and Anggilowu Villages, and "low" hazard is 218.14 ha or about 50.24% in Labibia and Wawombalata Villages. The impact or risk caused by flooding in Mandonga Subdistrict is material loss, some of which damage some facilities, including roads, bridges, buildings, and drainage systems; and paralyze community activities. The directions for flood control that can be taken are construction and repair/maintenance of infrastructure such as drainage; on a large scale can build canals; normalization of watersheds from silting solid particles; making injection wells (Artificial Recharge) or infiltration wells; integrated sewer in built areas; creation of green open areas (RTH); and application of bioretency technology and afforestation or reforestation.

## Technology-Enhanced Approaches in Teaching and Learning Business Courses at a Private University in Northern Philippines

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**Karen Joy A. Catacutan**, University of Saint Louis, Tuguegarao City, Philippines

### ***Abstract:--***

The Business Course is one of the many promising courses in the Philippines. Integration of diverse and successful techniques, such as the use of technology-enhanced approaches, evolves with time. The aim of this study was to evaluate the technology-enhanced methods used by educators in teaching business courses in private schools, as well as their impact on the learners' academic inclination. The study employed a descriptive-quantitative research design, with 264 Business Administration and Accountancy students responded to the questionnaire. The data was analyzed using descriptive statistics such as frequency, percentage, mean, and median. The study's hypothesis was tested using inferential statistics such as the T-test and Analysis of Variance. Smart Televisions, Online Discussions, Web-Page Applications, PowerPoint Presentations, Video Presentations, and Mobile and Tablet Applications were among the technology-enhanced approaches used by educators for both deliveries of discussions and channels for learning evaluations. It was also discovered that learners thought these methods had made a big difference in their learning process. As a result, it can be inferred that educators' use of technology-enhanced approaches has a substantial impact on business students' learning.

### ***Index Terms***

Business Courses, Northern Philippines, Technology-Enhanced Approaches, Tertiary Education

## Design, Fabrication, Performance Test and Evaluation of Arrowroot Starch Processing Machine

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***Abstract:--***

The study addressed an interesting problem and aimed to design, develop and perform evaluation of an arrowroot starch processing machine. The study includes technical performance evaluation, financial and economic feasibility study, and acceptability evaluation in developing the machine.

The developed machine has two functions: pulverizing and sieving dried arrowroot lumps into fine starch. Data analysis conducted showed that the type of processing methods used has significant effect in the processing time and recovery weight of arrowroot starch. The traditional processing method is significantly faster than the processing in the developed machine. However, processing the arrowroot starch in the developed machine has significantly higher weight recovery than the traditional method.

The moisture content of the arrowroot starch did not have significant effect on the processing time, but have significant effect on weight recovery.

The developed machine had a processing capacity of 25.9 kg/hr and efficiency of 94.3% The higher efficiency of the developed machine enabled higher weight recovery of the processed starch.

The financial feasibility of developing the machine revealed a return on investment of 42.33% and the acceptability evaluation yielded positive responses from potential users.

The author recommends prolonged field testing to determine the machine's field capacity, efficiency, and limitations.

***Keywords:***

arrowroot, arrowroot starch, processing machine, pulverizing, sieving.



# Driver Safety System for Drowsiness, Heart Attack, Object Detection, and Internal Temperature Control of Car with Real-Time Wireless Communication

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## ***Abstract:--***

The accidents on the roads increases day by day and people lose their valuable and precious life. Transport is very necessary for a country because the economy of a country depends on transport. With the increase in transport, the accidents also increase because due rush the people lose their time, and they go in tension and lose the natural abilities. For this purpose, a system is designed which is implementable in every type of car, bus, truck, and other type of vehicle. This system avoids collisions when a driver goes in the condition of drowsiness or heart attack and communicates with a user mobile to inform in case of an emergency like a heart attack. Also, the system can control the internal temperature and humidity of the car because with the increase or decrease of temperature the humans can face many problems. When the driver goes in the condition of a heart attack many other people also lose their life and a very big accident occurs.

## ***Index Terms***

Accident, Communication, Collision Avoidance, Emergency, Object Detection, Temperature Control, Transport, Vehicle.

## Situational Analysis of Persons with Disabilities (PWDs) in Valencia City, Bukidnon: Basis for an Intervention Program

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***Abstract:--***

This study assessed and analyzed the current situation of the 295 registered PWDs in Valencia City, Bukidnon. Its objective include the gathering of socio-economic profile of the participants in terms of personal information, type of impairment, daily life, availment of government and non-government programs, policy awareness and priority needs as basis for intervention. The descriptive method of research was utilized employing the modified questionnaire of Institute of Developing Economies' Socio Economic Survey (IDESES) and a researcher-made questionnaire to determine the priority needs of the participants. Frequency and percentages were used to treat the data.

Results revealed that PWDs in Valencia City have less access to the basic necessities and services as stated in the RA 7277 and RA 9442 such as education, medical and livelihood. Furthermore, it also found that the Local Government Unit of Valencia City gives less attention in implementing policies for the betterment of the PWDs.

***Keywords:***

Persons with Disabilities, Situation Analysis, Intervention Program

# Implementation of a Secured Student Record Management using Modified RC6 and OTP Algorithms

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**Ruji P.Medina**, Graduate Program Technological Institute of the Philippines

**Catherine Bhel B. Aguila**, Institute of Information Technology Romblon State University

## ***Abstract:--***

In today's generation, the utilization of multimedia for communication plays an important role in transmitting authentic messages over the network. However, its growth has also made easy distribution and duplication. Educational Institutions have salient academic documents which are official and highly confidential and institutions are intended to uphold their safety. This is achieved through FERPA or Family Educational Rights and Privacy Act which is one of the strongest privacy protection laws in the U.S while locally, the Philippines and its universities need to achieve their commitment to comply with the Data Privacy Act of 2012. The emerging increased use of applications such as Student Information System (SIS) and Learning Management Systems (LMS), consequently raised security concerns ensuring its confidentiality, integrity, and availability. It was based on the avalanche effect, correlation coefficient, mean squared error, and the speed measurement of encryption and decryption processes that the statistical and runtime execution analysis were conducted. The quality of encryption was improved as evidenced by the 54.69% avalanche effect, which surpasses the standard of 50%, a very low average correlation coefficient of 0.0022 for the horizontal, vertical and diagonal directions, and a high mean squared error (MSE) of 11,556. Minimal runtime was also achieved based on the encryption runtime average of 0.98 and decryption runtime average of 1.93. Based on the numerical and visual results of the actual runtime and automatic tests, the good qualities of encryption and authentication were achieved.

## ***Index Terms***

data security, modified RC6, one-time password, record management

## Dimensions of Livelihood Initiatives of Indigenous Women in Davao City

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### ***Abstract:--***

The study was conducted to determine the dimensions of livelihood initiatives of indigenous women in Davao City and to develop a framework. Quantitative non-experimental research design using exploratory factor analysis (EFA) was utilized in the study. Exploratory factor analysis was used to identify the underlying structure of dimensions. The Keiser Meyer Olkin measure of sampling adequacy was used to test the magnitude of partial correlations among variables. The study made use of primary data. The data was gathered through survey questionnaire to 150 indigenous women-respondents. Based on the findings, the researchers found out that there are four dimensions of the livelihood initiatives of indigenous women that includes agricultural activities initiatives, entrepreneurial initiatives, small enterprise initiatives and peddling initiatives. A framework on the identified four dimensions of the livelihood initiatives of indigenous women was developed.

### ***Index Terms***

Dimensions of livelihood initiatives, indigenous women, COVID-19, Philippines

## Effect of Process Metrics on Software Fault Proneness

**Anjali Bansal**, Delhi Technological University

***Abstract:--***

Many work has been done in the field of software fault prediction by various researchers to classify the modules into faulty or non faulty classes. But most of the previous studies done in this field make use of static code metrics as independent variables. The objective of this paper is to check the effectiveness of process metrics on fault prediction performance. In this paper, We have analyzed the prediction performance on the basis of process metrics, static code metrics and different combinations of static code metrics and process metrics. In other terms, we can say that all the different combinations of static code metrics and process metrics work as independent variables and dependent variables are actual bug value. We have used naive bayes classifiers for implementation and data sets are collected from publicly available repositories. Area under ROC curve (AUC) is used to analyze the prediction performance and to check the statistical significance of the results, kruskal wallis test is used. The result of this study shows that use of process metrics in fault prediction gives effective results.

## The Quality of Instruction of the Teacher Education Institution (TEI) of North Luzon Philippines State College

**ANDRES T. MALINNAG**

***Abstract:--***

This study made use of the descriptive-correlational method; benchmarking activities were employed to selected SUCs. The frequency and percentage count; the mean was used; the Pearson product moment correlation was also used.

The quality of instruction of NLPSC-TEI were concluded with the following: The competency level of the Personnel Profile when correlated were significant to TAT; the same with FS-STP; and to LET Board Performance of the student-teachers, respectively. The TAT and FS-STP when corelated was not significant. However, there was a significant relationship of the TAT and the LET performance of the student-teachers. The TAT is a factor that can predict greater chances in the LET performance of the students. Thus, the overall quality of instruction of the NLPSC-TEI was determined to be dependent on the input and process indicators mentioned in this study.

***Index Terms***

Teacher Education Institution (TEI); Teacher Aptitude Test (TAT), Field Study-Student Teachers Performance (FS-STP), Licensure Examination for Teachers (LET).

## Factors Influencing the Labour Market Insertion of Undergraduate Graduates From Peruvian Universities

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**Judith Soledad Yangali Vicente**, Universidad Nacional Federico Villarreal

***Abstract:--***

The objective of the research was to propose that some socio-demographic factors: gender, economic level and parents' education; basic education factors such as the department and type of secondary education management and mainly undergraduate and postgraduate factors measured by the characteristics of the university-career explain the insertion of university graduates in the Peruvian labour market. The quantitative, theoretical and explanatory approach study consisted of the analysis of information received from the Ministry of Education, a sample of 8072 graduates from 2014-2017 from a total of 15 private universities and 35 state universities. We found 50% of graduates employed with adequate hours, wages and tasks, 21% with inadequate employment and the remaining 29% unemployed. Using the multinomial logistic regression model, it was shown that engineering degrees have 4 times the employment opportunity, while graduating from a university in the first places in the Research Ranking favours employment by around 50%, gender, department, family income and the mother's level of education are also factors that condition employment insertion.

***Keywords:***

Labor insertion, employability, labor market, multinomial logistic regression.

## Validators Performance Efficiency Consensus (VPEC): A Public Blockchain

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### ***Abstract:--***

The consensus is a problem in the distributed system. There are different nodes in the distributed system, and these nodes agree on specific criteria. As we know that there is no central authority in the distributed system, to control and manage. Therefore, block-chain is also a distributed system. The consensus is the core part of it. For the block-chain system, several consensus algorithms are designed. They have different philosophy behind since bitcoin appearance. Some of the consensus algorithms consume more energy, having low or high throughput, and low latency. In this article, we proposed a novel consensus algorithm for the block-chain system. It is more efficient and provided fairness to ordinary users. The fairness is, in terms of getting the reward for the creation of a new block in the block-chain system.

### ***Keywords:***

Blockchain Consensus, Consensus Algorithm, Consensus Mechanism



## Mobile Application in Learning Basic Needs of Plants using Internet of Things: Pokok+

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### ***Abstract:--***

Learning methods that use technology have a profound effect on learning. The Internet of Things (IoT) is a viable technology for Science, Technology, Engineering and Mathematics (STEM) education as it can integrate real-time data from the environment into the teaching and learning process. This can be done by developing a system that consists of physical objects that send data from sensors to smart phone for data manipulation. The objective of this study is to design and develop a mobile application based on IoT, Pokok+, as an additional material in learning Chapter 3 in Science and Technology subject of Year 2 in Malaysia's school. The Pokok+ application integrates the use of IoT technology to create an exciting and more interactive learning experience in classroom learning. The methodology used to develop the Pokok+ application consists of five phases which are analysis, design, development, implementation and evaluation. The results show the application received positive feedbacks in terms of engagement, interest and competency from students. The use of IoT in learning basic needs of plants can support students in visualizing the effects of light and water toward the growth of plants based on the current situation. Furthermore, the students can test their understanding by completing the exercise for each real-data module. This will increase students' interest in STEM education by connecting the syllabus with the technology and environment.

### Keywords

IOT, Mobile Application, Basic Needs of Plants, Teaching and Learning, STEM education

## 21<sup>st</sup> Century Competency Level of Students: Basis for a Policy Input towards Enriched 21<sup>st</sup> Century Education

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**Darin Jan C. Tindowen**, Professor, EEE, Sethu Institute of Technology

### ***Abstract:--***

Education is important for equipping people with the skills they need to function in society. This means that quality education is achieved if contemporary learning is lifelong, necessitating the development of 21st century skills in learners. As a result, educational institutions all over the world should be able to teach students 21st-century skills. The purpose of this descriptive study was to determine the level of 21st-century skills among college students as a foundation for developing programs and initiatives aimed at providing a more enriched 21st-century education. It specifically measured the competency level of students along with learning and innovation skills; information, media and technology skills; and life and career skills. 305 students from a Higher Education Institution in Northern Philippines were considered in the study. The study found out that students have an accomplishing competency level along the three (3) areas of the 21st century skills which was supported by the existence of programs/policies of the University along with standards; professional development; curriculum and instruction; and learning environments that enable the development of 21st century skills. It also revealed that among the three (3) specific profile variables, only when students are grouped into their respective programs that significant difference was found. As an offshoot of the study, a 21st century education framework for higher education was developed to address the needs of 21st century college learners.

### ***Index Terms***

21st century competency, learning and innovation skills, information, media and technology skills, life and career skills, higher education

# Study of the Performance of Different Open Thermal Receivers in PTSC System as Heat Source for Refining Salt

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## ***Abstract:--***

Currently two-wheeler is the most widespread modes of transport. The helmet is the motorcyclist's main protection as bike riders without helmet have less protection and high risk. Consequently, it is extremely appropriate for bike riders to utilize helmet. We focused on the advancement of a procedure using digital image processing and deep convolutional neural networks (CNNs) for finding motorcyclists who are violating helmet laws. It is observed that the use of helmet to motorcyclists made mandatory by the Governments for the security of the public, without helmet bike riding is a punishable offense. Many states in India have adopted manual strategies to catch the violators who do not wear helmet. With the advent of latest technologies, manual strategies may be replaced with automatic detection systems which use deep convolution neural networks based on Artificial Intelligence which could automatically identify the helmet violation. We discussed different methods, approaches, and models in designing the model based on digital image processing. With the advent of latest technologies, manual strategies may be replaced with automatic detection systems which use Machine Learning to adapt itself to highlight the violators so that they can be punished. Using video surveillance of the street, the proposed approach detects, if the bike rider is wearing a helmet or not without manual help. The proposed system uses image processing and Deep Convolutional Neural Networks to identify motorcyclists who are not wearing helmet. The experiments on real videos successfully highlight in the surveillance video with motor cyclists who are wearing and who are not wearing helmets with a low false alarm rate is calculated based on the average and efficiency is calculated of the proposed approach. The system uses Convolution Neural Networks derived from head region image data of motorcycle riders using individual image frames from video data. In this research, we concentrated on deep-learning methods along with artificial neural networks to design an analytical model which identifies the persons and vehicles which are without helmets based on the algorithms. We even concentrated on the Digital Image Processing based for helmet identification. To identify the motorcycle riders who are automatically identified, based on the helmet, and segmented from video data. The Design and implementation of the conventional deep learning based neural network algorithms are discussed and implemented for the result, where the graphical analysis along with the experimental analysis is done using the python, pandas, scikit learn along with the Jupiter notebook. Tests on the tracking system also demonstrate the validity and usefulness of the classification approach using CNN.

## ***Index Terms***

Helmet detection system, Vehicle classification, Machine Learning, Deep Convolutional Neural Networks.

## Conservative Working Capital Policy: Can it Increase Profitability and Sustainable Growth Rate?

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**Asti Ayuk Putri Pertiwi**, Satya Wacana Christian University, Indonesia

**Supramono Supramono**, Satya Wacana Christian University, Indonesia

***Abstract:--***

The objective of this study is to investigate the effect of conservative working capital policy on profitability and examine the effect of conservative working capital policy on sustainable growth mediated by profitability in the manufacturing sector in Indonesia. This study involves 133 manufacturing firms in Indonesia during the 2013-2018 period. Data are analyzed using panel data regression with random effects estimation models. The result of this study showed that conservative working capital policy, both investment and financing policy, has proven to have a positive effect on sustainable growth rate. Besides, this study also proved that profitability has a positive effect on SGR. Furthermore, there was the effect of conservative working capital policies on the level of sustainable growth through profitability. This study not only contributes to expanding knowledge about the relationship between working capital policies, profitability and sustainable growth rates, but also has relevant implications for firm managers to improve firm performance to be able to grow sustainably.

***Keywords:--***

working capital policy, profitability, sustainable growth rate, pecking order theory

## Poverty Alleviation Performance in Coastal Communities Through Village Funding Programs in Kecamatan Wangi-Wangi Selatan, Wakatobi Regency, Indonesia

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**Sulastri Taridala**, Management Science Study Program, Postgraduate Program at Halu Oleo University, Indonesia

***Abstract:--***

The study analyzed the effectiveness and factors supporting and inhibiting the performance of poverty alleviation through the Village Fund Program in Wakatobi Regency. This research uses a qualitative approach. Village samples taken purposively were the villages with the highest number of poor families, namely Mola Nelayan Bakti Village, Komala Village and Liya Togo Village. Respondents as many as 33 people were selected by purposive sampling and snowball sampling. The results showed that the short-term and long-term poverty alleviation programs in the Village Fund Program in Mola Nelayan Bakti Village were “less effective”, Komala Village “quite effective” and Liya Togo Village “less effective”. The factors that support the effectiveness of the use of village funds (DD) in poverty alleviation are; a) Clear laws and regulations so that the implementation team can carry out their duties properly; b) Accuracy of fund allocation policies; and c) Appropriate program planning. Meanwhile, the factors that hinder the effective use of village funds (DD) in poverty alleviation are; a) Community's indifferent habits; b) Lack of disclosure of planning information; and c) Community participation (low); and d) human resources in the village are still low.

***Keywords:***

Poverty, Coastal and Village Funds

## Psychological Wellbeing and Help Seeking Attitudes among Cancer Patients in Malaysia

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**Sidek Mohd Noah**, Universiti Putra Malaysia

**Asmah Ismail**, Universiti Putra Malaysia

**Hari Krishnan Andi**, Asia Metropolitan University

### ***Abstract:--***

**Purpose:** This study envisioned to investigate psychological help seeking attitudes among cancer patients with symptoms of depression, anxiety, and stress.

**Methodology:** The study utilised a survey-based methodology using questionnaires in a specific location. The sample was 240 cancer patients from the Department of Radiotherapy and Oncology, Hospital Kuala Lumpur. The Depression, Anxiety, and Stress Scale (DASS) and the Attitudes toward Seeking Professional Psychological Help Scale (ATSPPHS) were used for data collection. Both descriptive and correlational analyses were performed on the data. The raw scores collected from the administration of the DASS were analysed to depict the state of psychological wellbeing of the patients and the ATSPPHS to depict the extend patients would seek professional psychological help such as mental health counselling. The interceding influence of attitudes toward seeking mental health counselling between prevalence of psychological distress and intent to seek mental health counselling was examined through correlational studies.

**Findings:** Findings show that attitudes toward seeking mental health counselling were negatively correlated with all dependent variables of symptoms of psychological distress – depression, anxiety, and stress. The Pearson correlation revealed a significant relationship between attitudes toward seeking mental health counselling with all the dependent variables in the study.

**Significance:** The research may assist counsellors and other professional helpers including doctors to view their cancer patients holistically, not being restricted to their scheduled cancer treatments, but also to their psychological well-being. Professional helpers need to extend their care beyond treating the disease but also to provide emotional support to strengthen the patients' will power towards healthy living.

### ***Keywords:***

cancer patients, mental health counselling, professional psychological help, psychological help seeking attitudes, psychological wellbeing

## Informal Economy: A Closer Look to its Contribution to Urban Gross Income

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### ***Abstract:--***

Since the informal economy is unregistered, its contribution to economic growth in terms of gross income is unknown. The researcher's goal was to figure out what causes the informal economy to exist in Tuguegarao City and how it contributes to the city's gross income. The respondents were selected using purposive sampling. An open-ended and organized interview style, as well as documentary research, were used. The majority of those who work in the informal economy are women, who are married and they were in the market for nearly a decade. The respondents' reasons for participating in the informal economy were due to a lack of or insufficient work opportunities that would qualify them. Also, since government laws are not strictly followed by the former, engaging in the informal economy is much simpler than engaging in the rational or formal economy. The simplicity of making these types of economies and the lack of job prospects in the city are two factors that contribute to the nature of these small-scale and unregistered businesses. Despite the fact that they are "unregistered," informal economies contribute to the city's gross income because they pay "alkabana" to the local government as a "fee" or "tax."

### ***Index Terms***

Informal Economy, Gross Income, Philippines, Urban Policy.

## Web-Based System on Evaluating Practicum Experiences of Students

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***Abstract:--***

The onset of Covid-19 pandemic prompted educational institutions to adapt flexible learning system where students have the option for online or blended learning. This is one concern of the Practicum courses since face-to-face meeting with training supervisors and hands-on experience of work are usually done. With the quarantine restrictions prohibiting students to hold their on-the-job trainings in offices and only have the option to do it online, educational institutions may conveniently monitor and assess the practicum experiences of their students even without doing onsite monitoring. Through a web-based evaluation system, an educational institution can systematically and conveniently conduct a 3600 feedback from practicum supervisors and practicum students that provides input in the monitoring performance of students and feedback on learning experiences in training stations. The conducted system testing and evaluation among the target users yielded favorable points on pursuing a project that can be simultaneously utilized by students, faculty, and training stations for a faster and easier way of data collection and generation in the course Practicum across different disciplines.

***Keywords:***

online evaluation, practicum, on-the-job training, training feedback, web-based evaluation



## Reducing the Use of Motorcycle to Drop Off and Pick up Students Based on the perception of Parents at Transportation Departement of Gianyar Regency, Bali, Indonesia

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### ***Abstract:--***

The mobility of students in carrying out learning activities at school is carried out in various ways and by using different modes of transportation. The biggest phenomenon currently occurring is the large use of motorcycle. The composition of motorcycle in the number of motorized vehicles in Gianyar Regency reaches more than 87.926%. Why people tend to use motorcycle is due to several reasons, among others, the lack of quality of public transport services / school transportation (Kamba et al., 2007). Meanwhile, another reason for using a motorcycle is because it provides advantages such as being more agile and effective, because it can walk in pedestrian facilities, remote areas and reach longer roads (Starkey, 2016). One of the phenomena of using a motorcycle that is quite large is for student pick-up activities which have become a habit. This paper aims to provide several solutions to reduce the use of motorcycle in student pick-up activities, especially for junior high school students in Gianyar Regency by analyzing the perceptions of 25 parents of students who work at the Transportation Department of Gianyar Regency, Bali. The solutions offered are not only related to transportation policy but also education policy. Based on the results of the analysis can be seen that most of respondents propose to improve the quality of free student transportation and other suggestion is to improve education policy and increase the number of junior high school location to reduce the use of motorcycle.

### ***Keywords:***

Public Transport Policy, Education Policy, Attitude.

# Site Suitability Analysis for Small Scale Irrigation Projects in the Provinces of Romblon and Marinduque through Geographic Information Sysyem-Based Water Resources Assessment

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## ***Abstract:--***

This study focused mainly on the identification of suitable sites for small scale irrigation projects in the provinces of Romblon and Marinduque through GIS-based water resources assessment. Collection of primary and secondary data and validation of existing small scale irrigation projects in the provinces of Romblon and Marinduque were conducted. All data collected were consolidated, analysed and used in the processing of needed thematic maps using Geographic Information System and Remote Sensing techniques. Validation shows that Diversion Dams, Small Water Impounding Project, Shallow Tube Well, Pump Irrigation System Open Source are the main irrigation systems both in Romblon and Marinduque. Using the obtained coordinates, the location maps of validated existing Small Scale Irrigaion Projects and suitability maps were generated. Analysis shows that Romblon and Marinduque have high suitability for SFR, STW, and PISOS development.

## ***Keywords:***

Geographic Information System, remote sensing, small scale irrigation project, suitability map

## The Motivation of Employees and Its Impact on Projects Success

**Noralhuda M. Azize**, Assistant Lecturer at College of Education for Women, University of Thi Qar, Iraq

### ***Abstract:--***

Employees are the foundation for any project, and for the success of the project, we must focus on them and pay attention to them first, this is done by motivating the employee with the factor that he deems is important to his life. The aim of this study was to evaluate the effect of motivation on employee performance and to determine the best approach for motivating employees, 20 employees were chosen from different sectors in Iraq to study their performance dependency on five important determinants. Under different cases of motivation, there was a direct impact and strong correlation between motivation and project success. It was found that the best way to motivate employees is by using variable motivation depending on employee's desire and then changing with the happening changing in the psychological, social, and economical status of the employees.

### ***Index Terms***

motivation, employees, intrinsic, extrinsic

## Leisure Program on Sports, Physical Education, Recreation, and Arts in Isabela State University System

**Dr. Aida Ballard Singson**, Assistant professor 1, Isabela State University, Philippines

***Abstract:--***

The need for physical activities along with sports and Arts activities are increasing with the growing population and the work pressure in different global regions. For getting relieved from this hectic lifestyle. The educational sectors are therefore now evolving various outdoor activities in their instruction system so that faculties and students both can be satisfied from their lifestyles after spending a busy day. In this study, how such activities are playing an important role for making the leisure period effective, has been illustrated. After taking the survey over 379 students and 263 faculties of Isabela State University, the result has been described here to get better understanding. The significance of physical education has been emphasized in this study based on the survey result where respondents have found responses in a positive way to improve health measures.

***Keywords:***

Leisure sports, recreation, physical education recreation, Arts in university, impact of recreation.

# Topology: Emergent Features of Electrical Transmission and Distribution Losses in Response to Population Density

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***Abstract:--***

Electric transmission and distribution losses are present during the distribution of power to its consumers especially to the remote areas that needs long connections to supply. Using Complex Adaptive System (CAS), the study aims to determine the complexity of the electric transmission and distribution losses and the population density of the countries due to the changing environment. Using the data from the World Bank Database for the year 2014, 130 countries were used as agents. Interaction between these Agents was measured using the synergy calculator software. Countries with lesser synergy than the obtained threshold value were considered as not connected, whereas those who meet the threshold were connected. The histogram shows the graphical representation of those Agents and then used to determine clusters. The Emergent feature for micro-level, which obtained by describing their scatterplots, is Population Topology categorized as Spread and Compact. For the macro level, on the other hand, an Emergent Behavior of Electrical losses characterized as High and Low occurred. Evidence shows from cluster 1 and cluster 2 as well as of the general scatterplot that as the population becomes denser, the electrical loss is on its minimum.

***Keywords:***

Complexity, agent, adaptive, losses

# A Conceptual Framework on the Role of Instructional Leadership and Teachers' Change Readiness in Education

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**Aminuddin Hassan**, Universiti Putra Malaysia

## ***Abstract:--***

The School-Based Assessment (SBA) is the recent educational reform being introduced to improve the quality of the education system to international standards. Leadership is essential to the success of any reform effort, according to previous findings. Principals must play a role in school organization as an instructional leader who has a positive effect on preparing teachers for the reform. This concept paper examines the critical role of principals' instructional leadership in preparing teachers to enact educational reform, specifically the SBA. There is an overview of possible improvements to the SBA. The concept of principals' instructional leadership as well as teachers' readiness for change will also be addressed. The final section of the paper will describe a literature review relating to the impact of principal instructional leadership on readiness for change to provide empirical evidence. This article is intended to add to the body of knowledge in the field of educational administration by adding literature on the role of instructional leadership in school preparation for change.

## Wireless Data Transfer Based Real-Time Drip Irrigation System

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### ***Abstract:--***

Pakistan is an agrarian country. Irrigation is a process that is being used to artificially supply water to the soil. Conventionally, areas, where there is no rainfall or scarcity of water, is supplied through inland waterway or tube wells. Frequently used irrigation techniques have a bunch of problems such as increasing the labor force of humans and soil erosion. As far as agriculture is very important. The productivity of agricultural fields depends on the nutrients in the soil, optimal combination of supply of water according to the requirements of the crops, and environmental conditions that are appropriate for farming. The concentration of wetness in the soil provides water to the plants and crops. Over or under-irrigation leads to an excessive or low water supply which can lead to inferior results. To receive the information of the system with mobile phone wirelessly about the condition of the solenoid valves in water supply pipes, water pump and the level of water in the storage tank. A system is designed to reduce the labor work and save energy, which can result in a uniform water supply required for the plants. Any time the mobile user is informed about the function of the system.

### ***Keywords:***

Agriculture, Irrigation, Moisture, Soil, Solenoid Valve, Wireless, Water Pump.

## OHS Management in Prevention of Construction Work Accidents (Case Study of Development of Payangan Sub-District Government Center)

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### **Abstract:--**

The general objective of this study is to analyze the preventive efforts and control work accidents in the construction project of PT. Narendra Putra Dewata. Meanwhile, the specific objective of this study is to analyze the implementation of OHS management commitment, OHS organization, OHS rules and procedures, OHS communication, and OHS training on PT. Narendra Putra Dewata. The study was conducted using a qualitative descriptive method with in-depth interviews and observational approaches. The subjects of this study were 4 main informants and 3 triangulation informants. The main informants were OHS expert workers, while triangulation informants were field workers. The data validity test was carried out by using the source triangulation technique, namely checking data to other sources, field workers in this study, and technical triangulation, namely checking data through different techniques, field observation in this study. The result of this research are: 1) PT. Narendra Putra Dewata has committed to implementing OHS as evidenced by the existence of an OHS policy, provision of OHS equipment, and supervision. However, it was not running optimally. 2) PT. Narendra Putra Dewata has an OHS organization in the form of OHSAC. However, it was not following the existing regulations. Besides that, the OHSAC existence has not been fully utilized. 3). PT. Narendra Putra Dewata has and carries out OHS rules and procedures following Government Regulation No. 50 of 2012. The reward and punishment system has been running even though it was not yet optimal. 4). PT. Narendra Putra Dewata has implemented OHS communication and has been running according to regulations. 5). PT. Narendra Putra Dewata has carried out OHS training. There have been special training for workers according to their field of competence. The company is suggested to involve workers in the OHSAC organizational structure according to the regulations. Thus, they can see OHS problems in the field from the workers' point of view. The company can take firm action on any violation of regulations committed by workers to prevent any similar incident to happen again. The company is suggested to carry out toolbox meetings with all workers.

### **Keywords**

PT. Narendra Putra Dewata, OHS management, Construction Work Accidents.



## Research on Buryat Language in Mongolia

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### ***Abstract:--***

The purpose of the research work is to study the present situation of Buryat (Buriad) language, the minority languages of the nations and ethnic groups in Mongolian territory, within the framework of the language policy, and to define the language vitality and endangerment based on some of the international criteria and the information in “Ethnologue Languages of the World” (19th edition, 2016).

In this research, we used some sociolinguistics methodologies such as collecting and developing the materials, sociological survey, investigative and statistical method, and comparing and contrasting logical method, and correlation method, analytic and synthetic method and so on.

In this study, to define the Buriad language’s vitality, the author used the six criteria on language vitality and endangerment such as Language Vitality and Endangerment (UNESCO 2003), UNESCO Framework (UNESCO 2009), Ethnologue Vitality Categories (Lewis 2009), Language Vitality and Endangerment (Michael Kraus, 2007); Fishman’s Graded Intergenerational Disruption Scale (GIDS 1991), Expanded GIDS by Paul Lewis and Simons (EGIDS 2010) used more commonly and frequently in international level.

Finally, as a result of the study, according to the above mentioned six criteria, the Buriad language included in the categories such as severely endangered, endangered, threatened, critically endangered or definitely endangered.

During the research, we observed that several factors such as demography, politics, geography, social and economic situation, psychology, population movement, the government policy on language and others have influenced to decrease the number of the minority languages of the nations and ethnic groups.

Eventually, it is necessary to study, save, revitalize and document the minority languages and inherit them to the next generation.

### ***Key words:***

Mongolian languages, minority language, Buriad, dialects

## Events and Disaster Management of Biological Dengue Hemorrhagic Fever (DHF) in Bombana Regency, Southeast Sulawesi Province, Indonesia

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### ***Abstract:--***

This study analyzes the distribution of dengue cases, the causes of dengue and the planning of DHF management. The research used a qualitative and survey approach. The object of this research is cases between 2015-2018 involving 72 respondents determined by accidental sampling. The results showed that DHF cases in Bombana Regency were spread over six sub-districts with the highest number of cases occurring in Poleang Barat District, namely 208 cases, followed by Poleang District with 111 cases and the lowest in Rumbia Tengah District with 17 cases. The average incidence of DHF is 0.33-0.98% of the total population, at the age of 0-10 years (48.30%) and 11-20 years (28.09%). The causes of dengue fever in Bombana Regency are caused by the physical environment of the settlement and social and economic conditions which are generally unhealthy and even unhealthy. DHF prevention can be carried out by integrating three stages, namely; 1) DHF prevention planning through mapping of dengue-prone areas, and formulating planning objectives, targets and achievements; 2) Implementation includes efforts to prevent, eradicate, and be supported by coping policies; and 3) Evaluation of achievement targets to produce strategic recommendations for DHF prevention.

### ***Keywords:***

DHF; Distribution; Countermeasures



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