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SEKOLAH TINGGI ILMU KOMUNIKASI
DAN SEKRETARI TARAKANITA

6th International Conference on Advanced Science, Education, Social Science, Technology and Management

29th & 30th December 2023



Holiday Inn Resort Baruna Bali
Bali, Indonesia

Organized By

Tarakanita School of Communication Sciences and
Secretarial Studies, Jakarta, Indonesia

Universitas Indonesia Timur, Makassar, Indonesia

Institute For Educational Research and Publication (IFERP)
Indonesia Society



ICASETM
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Social Science, Technology and Management

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Conference Theme

“

The numerous outstanding results and new difficulties in the applied sciences, engineering, technology as well as management sectors

”

Preface

We are delighted to extend a warm welcome to all participants attending the 6th International Conference on Advanced Science, Education, Social Science, Technology and Management (ICASETM-2023), taking place in Holiday Inn Resort, Bali, Indonesia on December 29th-30th, 2023. This conference provides a vital platform for researchers, students, academicians, and industry professionals from all over the world to share their latest research results and development activities in the field of Science, Education, Social Science, Technology and Management. It offers delegates an opportunity to exchange new ideas and experiences, establish business or research relationships, and explore global collaborations.

The proceedings for ICASETM-2023 contain the most up-to-date, comprehensive, and globally relevant knowledge in the field of Science, Education, Social Science, Technology and Management. All submitted papers were subject to rigorous peer-reviewing by 2–4 expert referees, and the papers included in these proceedings have been selected for their quality and relevance to the conference. We are confident that these proceedings will not only provide readers with a broad overview of the latest research results in Science, Education, Social Science, Technology and Management but also serve as a valuable summary and reference for further research in this field.

We are grateful for the support of many universities and research institutes, whose contributions were vital to the success of this conference. We extend our sincerest gratitude and highest respect to the many professors who played an important role in the review process, providing valuable feedback and suggestions to authors to improve their work. We also extend our appreciation to the external reviewers for providing additional support in the review process and to the authors for contributing their research results to the conference.

Since June, the Organizing Committees have received more than 200+ manuscript papers, covering all aspects of ICASETM-2023. After review, more than 65+ papers were selected for inclusion in the proceedings of ICASETM-2023. We would like to thank all participants at the conference for their significant contribution to its success. We express our gratitude to the keynote and individual speakers and all participating authors for their dedication and hard work. We also sincerely appreciate the efforts of the technical program committee and all reviewers, whose contributions made this conference possible. Finally, we extend our thanks to all the referees for their constructive comments on all papers, and we express our deepest gratitude to the organizing committee for their tireless work in making this conference a reality.

About ICASETM

The 6th International Conference on Advanced Science, Education, Social Science, Technology and Management (ICASETM-2023), which is scheduled to take place on the 29th and 30th of December, 2023 in the beautiful city of Bali, Indonesia will focus on establishing the bar for effective future inclinations with engineering, applied sciences, technology, and management. The international conference has been specifically designed with the intention of delivering outstanding outcomes and challenges in the engineering sector. It intends to bring collectively researchers, scientists, technicians and scholars in all fields of the applied sciences, engineering, technology, and management, for the propagation of original research conclusions, new approaches and developmental practices that yield real results.

Participants will be afforded the incredible chance to interact with leading experts from their respective fields, taking the opportunity to draw everyone commonly in a panel and to bestow their plans in different countries.

ICASETM-2023 strives to join the gap among researchers and academics in various domains, and this type of long-term imagination has resulted in the launching of this incredible and unique initiative involving experts from all fields. ICASETM-2023 is organized specially to furnish delegates with hard-to-find knowledge and expertise that they will find nowhere else.

Conference Objective

The main objective of the 6th International Conference on Advanced Science, Education, Social Science, Technology, and Management (ICASETM-2023) is to encourage scientific and informative exercises for the development of participants' lives by promoting the theory and application of different disciplines and divisions linked to the hurdles of experimental research.

One of the goals of ICASETM-2023 is to give specialists a world-class stage to distribute research discoveries by using innovative means of lecturing and presenting. This one-of-a-kind lecture output will be of tremendous benefit to students participating in the event. Scientists will also be invited to distinguish significant research subjects in identified regions in the fields of applied sciences, engineering, technology, and management.

The 6th International Conference on Advanced Science, Education, Social Science, Technology and Management (ICASETM-2023), one of the most comprehensive professional conferences of its kind in world, has been specifically designed to present technical and other assistance to intensify research and development enterprises, by proclaiming high quality research findings, as well as research papers/articles.

About IFERP

Institute for Educational Research and Publication (IFERP) is a multidisciplinary professional organization dedicated to Research and development within the field of Science, Engineering and Technology. IFERP is a preponderant body that has brought technical revolution and development of science and technology. The IFERP-forum constitutes of professional experts and overseas technical leaders. There is no stone unturned to strengthen the spheres of science, engineering, and technology. These days IFERP is one among the leading publisher of research papers in its prime quality peer-reviewed journals, continuing and analysis magazine.

The Institute provides an excellent scope of research and development to genii and experts operating within the field of engineering by providing monetary aids by that economic constraints will not create a hindrance to the technical growth and analysis development. The institute is supported by its International advisory Board (IAB) that isn't restricted to the landmass rather we've intellects from geographical area to spice up our organization.

Our Mission

- ◆ To assure quality of incubation and innovation processes from nook and corner of world.
- ◆ To connect professionals at a integrated platform for growth to divert knowledge and skills towards sustainable application of professional education.
- ◆ To ensure excellent opportunities for sharing and gaining knowledge through our professional activities and scientific conferences.
- ◆ To work with organisations to upgrade scopes of professional studies and research by monitoring further opportunities and applications.

Our Vision

- ◆ Of a united platform to explore research with opportunity to innovate multidisciplinary scopes and applications of professional studies.
- ◆ Of a conglomerate of scientific and academic associations working for humanity.
- ◆ Of digitalising innovation processes through our professional networking services.

Message from MD, IFERP



MR. A. SIDDH KUMAR CHHAJER

MD & Founder,
IFERP, Technoarete Groups

On behalf of Institute For Education Research and Publications (IFERP) & the organizing Committee, I express my hearty gratitude to the Participants, Keynote Speakers, Delegates, Reviewers and Researchers.

The goal of the 6th International Conference on Advanced Science, Education, Social Science, Technology and Management (ICASETM-2023) is to provide knowledge enrichment and innovative technical exchange between international researchers or scholars and practitioners from the academia and industries in the field of Science, Education, Social Science, Technology and Management.

This conference creates solutions in different ways and to share innovative ideas in the field of Science, Education, Social Science, Technology and Management. ICASETM-2023 provides a world class stage to the Researchers, Professionals, Scientists, Academicians and Students to engage in very challenging conversations, assess the current body of research and determine knowledge and capability gaps.

6th International Conference on Advanced Science, Education, Social Science, Technology and Management (ICASETM-2023) will explore the new horizons of innovations from distinguished Researchers, Scientists and Eminent Authors in academia and industry working for the advancements in Science, Education, Social Science, Technology and Management from all over the world. ICASETM-2023 hopes to set the perfect platform for participants to establish careers as successful and globally renowned specialists in the field of Science, Education, Social Science, Technology and Management.

Message from CEO, IFERP



MR. RUDRA BHANU SATPATHY

CEO & Founder,
IFERP, Technoarete Groups

IFERP is hosting the 6th International Conference on Advanced Science, Education, Social Science, Technology and Management (ICASETM-2023) this year in month of December, 2023. The main objective of ICASETM-2023 is to grant the amazing opportunity to learn about groundbreaking developments in modern industry, talk through difficult workplace scenarios with peers who experience the same pain points and experience enormous growth and development as a professional. There will be no shortage of continuous networking opportunities and informational sessions. The sessions serve as an excellent opportunity to soak up information from widely respected experts.

Connecting with fellow professionals and sharing the success stories of your firm is an excellent way to build relations and become known as a thought leader. I express my hearty gratitude to all my Colleagues, Staffs, Professors, Reviewers and Members of Organizing Committee for their hearty and dedicated support to make this conference successful. I am also thankful to all our delegates for their pain staking effort to make this conference successful.

Message from Keynote Speaker



IR. DR. WAN SHARUZI WAN HARUN

Head of Experts, Green Research
for Advanced Materials Laboratory
(GramsLab), College of Engineering,
Universiti Malaysia Pahang, Malaysia

Dear Esteemed Participants,

A warm welcome to the ICASETM-2023!

I am thrilled to be part of this exceptional gathering of minds and innovation, and I extend my warmest greetings to each of you. Your presence here is a testament to your commitment to advancing knowledge and fostering collaboration in the fields of Science, Management, Commerce, and Educational Research.

As we embark on this exciting journey, we can explore the latest advancements in technology, industry trends, and research strategies shaping our world today. The ICASETM has always been a beacon of excellence, providing a platform for researchers, scholars, and students to exchange ideas, discover new perspectives, and ignite innovation.

I invite you to seize this moment, engage in fruitful discussions, and build connections that will enrich your academic pursuits and leave a lasting impact on your professional journey. The knowledge you gain and share here will catalyse positive change, and I hope you leave this conference inspired and empowered to make a difference.

This conference is a unique opportunity to learn from the best minds in your fields. Embrace this experience, ask questions, and absorb the wisdom surrounding you. Events like these are stepping stones to a successful future. I want to thank IFERP for organising this remarkable event and all the participants for their dedication to pursuing knowledge. Let us make the most of this opportunity, learn from each other, and contribute to the ever-evolving landscape of our respective fields.

Once again, welcome to ICASETM-2023. May this conference be a source of inspiration, collaboration, and innovation for all.

Biography of Keynote Speaker



**AIR FIRST MARSHAL ASST. PROF.
DR. IR. ARWIN DATUMAYA
WAHYUDI SUMARI, S.T., M.T., IPU,
ASEAN ENG., ACPE, APEC ENG.**

Rector of Adisutjipto Institute of
Aerospace Technology &
Special Staff to Chief of Staff of the
Indonesian Air Force &
Adjunct Professor, Politeknik Negeri
Malang &
Head, Cognitive Artificial Intelligence
Research Group (CAIRG)(IAIS),
Indonesia

Air First Marshal Asst. Prof. Dr. Ir. ARWIN DATUMAYA WAHYUDI SUMARI, S.T., M.T., IPU, ASEAN Eng., ACPE, APEC Eng. is an Air Force High-ranking Officer who graduated from the Indonesian Air Force Academy with the Adi Makayasa medal, Trophy for being the Best Graduate of the Department of Electronics in 1991, and and the Recipient of the Outstanding Officer Award from the Chief of Staff of IDAF in 1996. He holds a series of academic achievements, including a B. Eng. in Electrical Engineering (1996), an M. Eng. in Electrical Engineering (2008), and a Dr. in Electrical Engineering and Informatics (2010), all from the Institut Teknologi Bandung, Indonesia, each earned with Cum Laude honors. His diverse roles encompass heading the Cognitive Artificial Intelligence Research Group (CAIRG), co-founding and serving on the Board of Supervisory of the Indonesia Artificial Intelligence Society (IAIS), and active membership in the Indonesia Cyber Security Forum (ICSF). He has published more than 300 articles, and keynote speakers at government and nongovernment agencies, achieved Best Paper Award at home and abroad, has 8 registered patents on Knowledge Growing System (KGS) and 50 copyrights on Artificial Intelligence applications. His research interests span cognitive artificial intelligence, machine learning, information fusion, pattern recognition, and cybersecurity. Arwin also holds various national and international professional certificates, including Professional Engineer in electrical engineering and flight simulator. Currently, he serves as the Special Staff to the Chief of Staff of the Indonesian Air Force, holds the esteemed position of Rector at Adisutjipto Institute of Aerospace Technology, and is an Adjunct Professor at the State Polytechnic of Malang, Indonesia.

Workshop



Dr. Logenthini holds a PhD in Education and serves as a Program Director and Lecturer at Raffles University. With over 12 years of teaching experience, she has covered nearly 20 subjects. Committed to enhancing student learning, she actively engages in research focused on addressing learning challenges. Dr. Logenthini has conducted over 40 workshops for staff and students in tertiary institutions. Recognized for her excellence, she has received 5-star ratings for teaching and attained first-class evaluations in teaching and assessment over the past 12 years. Her research areas encompass teaching pedagogy and ELT classroom management.

DR.LOGENTHINI MARIAPPAN

Program Director & Lecturer,
Department of Education,
Raffles University, Johor Bahru,
Malaysia

Biography of Session Speaker



Analytics, product management, technocrat & business strategy professional with comprehensive 15++ years of exposure in business, government and technology. Lead team members consist of various teams/departments, such as: strategy, product, data, policy, tech/engineering, economics, research, partnership, operation. Drive organizations to make better decisions, faster, across levels and functions. Plan, build and commercialise digital and data product portfolio.

Actively volunteer in numerous domains to drive concrete impacts in city, society, nation and region. Passionate in talent building, teaching, academic research (including journal editorial board) and philosophical discussion.

MR. JUAN KANGRAWAN

Head of Data Analytics, Research & Digital Products, Jakarta Smart City, Indonesia

Biography of Session Speaker



Melissa Drew is a digital transformation executive and visionary with 29+ years of experience. A board member, mentor, author, and cancer warrior, she is a founding member of Women Leaders in Data and AI and the host of the podcast 'Impact of AI (& Data)'. She is recognized as a top data consultant and awarded Top 50 Thought Leaders and Influencers to Work within 2023. Melissa recently ranked #34 on the Top 100 Global Women in Supply Chain due to her forward-thinking approach. Her recent TEDx talk, 'The AI Literate Citizen,' highlights the impacts of AI often hidden from the everyday citizen. She speaks frequently internationally about the best and worst AI and Quantum technologies. Melissa is also president of the non-profit Blended Pledge, providing grants to women and underrepresented minorities to bring diverse voices to participate or speak at industry conferences.

MS. MELISA DREW

CEO, Simply -Transformed,
United States

Biography of Session Speaker



MR.SUDARSHAN RODRIGUEZ

CEO & Founder, RLTWorks
Thailand

Sudarshan Rodriguez, is the CEO of the next generation social enterprise, RTLWorks and has worked in the development sector for 24 years. He is a development professional with multi-disciplinary backgrounds in disaster management, environmental sciences, environmental economics, policy, and environmental law.

After completing his second masters from the London School of Economics, he started his career with UNDP-India, New Delhi as a Programme Development Specialist on their Environment & GEF Programme. Since then he has broadened his area of expertise working with variety of organizations – the UN, grassroots organizations, policy think tanks, civil society and academia in India, Asia, US and Europe in leadership, advisory and other positions.

He has engaged in advocacy with governments as well as movements consisting of conservation, environment and fish worker groups involved with coastal-marine management, land rights and livelihood issues. He has also worked in the area of disaster response and management in coastal India and the Andaman Islands, during the Asian tsunami of 2004.

Till March 2020 he was the Programme Director at Mahatma Gandhi Academy of Human Development (MGAHD), heading a centre of the Tata Institute of Social Sciences, Mumbai (Asia's first social work institute and now a university) focusing on Livelihoods and Social Entrepreneurship.

He also delivers and implements Radical Transformational Leaderships 'learning-in-action programs' – for the UN, business and non-profit organizations on different aspects of leadership development for sustainable change in India, Norway, the United States, Japan, Philippines, Thailand, Indonesia. He has worked with youth and their leadership development from India as well as all the ASEAN countries.

Session Chair



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Mindful Teaching, Diverse Learning: Harnessing Multiple Intelligences for Students Success

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Abstract

In recent times, a noticeable trend has emerged—many undergraduate students are raising concerns about the teaching techniques employed by their lecturers. This highlights the fact that students exhibit varied learning preferences based on their distinct types of intelligence. To address this, the multiple intelligence approach offers a solution to assess students' individual profiles and their favoured teaching styles. Employing multiple intelligence tests becomes a means to categorize student types effectively. Leveraging the Multiple Intelligence (MI) approach, educators can tailor teaching methodologies to align with students' needs. This study employs a qualitative research design, investigating how 70 lecturers perceive the multiple intelligences theory in education. Carefully selected participants from diverse disciplines and experience levels are chosen through purposeful sampling. Thematic analysis of interview data aims to uncover themes and patterns related to lecturers' comprehension, beliefs, attitudes towards multiple intelligences, their integration into teaching practices, and the challenges encountered. Ultimately, the findings promise to offer valuable insights to educators and institutions, facilitating the seamless integration of diverse teaching strategies.

Keywords

Multiple Intelligence, Teaching methodologies, educators

The Use of GPT Chat Phenomenon in the Uses & Gratification Theory Perspective

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Abstract

GPT Chat is an artificial intelligence system developed by Open Artificial Intelligence (AI) that is able to answer a variety of text-formed questions. It is not only produces text, but also translates languages and writes various kinds of creations. It is used in any fields, including education. The purpose of this research is to analyse the phenomenon of the use of GBT chat in college using the theory of uses and gratification. The media is chosen to meet the needs of its users as a medium of communication, information, entertainment, education, employment and mention some. The method used is a survey that collects data from students who are actively using GPT Chat in the teaching and learning process. Research results show that students use ChatGPT to meet their needs such as seeking help in doing their assignments or lecturing projects and preparing final assignments. The study also showed that students and educators assessed the use of ChatGPT as having a positive impact on meeting their needs.

Keywords

Uses and Gratification, GPT Chat, Mass Media, Artificial Intelligence, Education

The Effect of Tagline “Beli Sekarang, Bayar Nanti” on Decision to Use Shopee Paylater

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Abstract

This study aims to determine the effect of the tagline “Beli Sekarang, Bayar Nanti” on decision to use Shopee PayLater for Generation Z in Bekasi, West Java, Indonesia. The theoretical studies used in this research are persuasive communication; SOR (Stimulus–Organism–Response) theory; marketing communication; tagline (familiarity, differentiation, message or value), and purchase decision. This is a quantitative research; distributing questionnaires to 100 respondents in Bekasi area. The sampling technique in this study is nonprobability sampling, namely purposive sampling. Data analysis techniques used is descriptive analysis and simple linear regression analysis. The results showed that there is a relationship between the tagline “Beli Sekarang, Bayar Nanti” and the decision to use Shopee PayLater with a correlation coefficient value of 0.510. The effect of the tagline “Beli Sekarang, Bayar Nanti” on the decision to use Shopee PayLater is 26%.

Keywords

Tagline, Purchase Decision, Shopee PayLater, Generation Z

The Meaning of Emoticon used by K-pop Fans

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Abstract

K-pop has influenced people globally. The fans of K-pop idols are everywhere. The news about k-pop idols is usually swarmed by emoticon. The emoticon is used to enhance the message to their idols. Emoticon is chosen to enhance the meaning since the popularity of emoticon is increased. This study was conducted to explore the meaning of the emoticon used by the k-pop fans. There are 150 comments using emoticon analysed which were taken from the Instagram. The data were analysed using the semiotics from Roland Barthes. This semiotics theory was chosen since the analysis went to finding the myth of the emoticon used. The result of this study is the emoticon used shows how close the relationship is between the k-pop fans and their idol. It is shown on most of the emoticon used are related to love, kiss, and hug which means k-pop fans see their idol as someone they love the most and always root for them. The result of this study supports the idea that k-pop fans often indulge in the romantic fantasy with their idols.

Keywords

emoticon, k-pop, meaning in use, semiotics

Healthcare Integrated Information System in Indonesia

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Abstract

The United States (US), leads the world in medical science and technology. Lead by clear definitions in almost all sectors of clinical research, training and governance practices. [1] Likewise, the pharmaceutical and medical device (medical equipment) manufacturers are considered one of the leading in the world. Therefore, many of the definitions and rules have also been adopted into global regulations by the world health organization, the World Health Organization (WHO). Currently, these rules have been implemented into the health information system (HIS), which further rapidly being adopted and used in many countries. Nowadays, health facilities (HF) around the world have used HIS, which are basic or have reached an advanced level. This paper will describe how the development of HIS and applied products from utilization of information technology (IT) in Indonesia, along with the opportunities and challenges in the future.

Keywords

healthcare, integrated information system, applied science

Portuguese Military Cyber Human Resources Management

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Abstract

The Portuguese public sector institutions, including the Armed Forces, are facing increasing cost reductions due to budget cuts resulting from economic crises and the pandemic scenario. Although Lean thinking aims to reduce waste and improve customer satisfaction through continuous improvement, its implementation often faces challenges. The Portuguese Air Force was a pioneer in applying Lean methodology, achieving positive results in crucial areas, and extending this methodology to other Armed Forces institutions could contribute to better use of national resources. This paper explores the implementation of Lean philosophy in the Portuguese Armed Forces, specifically in the recruitment, integration, and retention of talent in Cyber Security. Centralizing and simplifying processes and resources, as well as resolving challenges inherent to the area, maybe the right approach to respond to the implications on National Security and Defense, providing necessary resources for the capture, training, and maintenance of essential Cyber teams and processes. The mentality based on work processes needs to change to speed up the use of resources and the behaviour of executing elements.

Keywords

Portuguese Armed Forces, Agile Methodology, Cyber Security, Retaining Talent

The Tourists' Behavioural Intentions Pasca Covid-19 Pandemic

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Abstract

Pasca Covid-19 pandemic, tourism in Indonesia revived and began operating after a very severe downturn. With the travel ban lifted and economic conditions starting to improve, the tourism industry is also starting to operate. Public interest in returning to travel has increased significantly after being confined to fear for approximately three years due to the pandemic. The objective of this study is to examine the impact of the destination image and the perceived risks on the tourists' behavioural intentions. This study uses a quantitative approach with an online survey applied as a data collection technique. The research sample is obtained by using a random sampling method. The process of data analyses is carried out with the help of Smart PLS4. The research findings are expected to show the impact of destination image and perceived risk on the tourists' behavioral intentions. The results of this research can be used as an input for tourism industry players in managing tourist destinations.

Keywords

Destination Image, Perceived Risks, Tourists' Behavioural Intentions

Bacteriogenic Synthesize of Gold Nanoparticles and Their Separation using Inexpensive Zirconia–Ceramic Composite Membrane

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Abstract

The present study addresses the application of membrane technology to recover the bacteriogenic synthesized gold nanoparticles from their aqueous solution. An inexpensive zirconia ceramic composite membrane was developed for this purpose and employed for the ultrafiltration of gold nanoparticles. For this, firstly, the low-cost ceramic membrane support was prepared using inexpensive clay-based raw materials such as china clay, quartz, and kaolin, after that the support was coated using zirconia particles spray pyrolysis method. After coating, the composite membrane was characterized and found that the permeability, porosity, and pore size of the membrane were 1.08×10^{-7} L/m²hPa, 30% and 100 nm, respectively. However, the pore volume, specific surface area, and average pore size of the prepared zirconia particles were measured using Brunauer, Emmett, and Teller (BET) surface area analyzer and found to be 0.083 cm³/g, 22.04 m²/g, and 10.9 nm, respectively. Furthermore, using this coated membrane and a dead-end filtration setup, the gold nanoparticles were separated from their aqueous solution. The gold nanoparticles ultrafiltration study was performed at distinct transmembrane pressures (69–345 kPa) and AuNPs concentrations (25–100 mg/L). The optimum permeate flux and gold NPs rejection, at 207 kPa transmembrane pressure and 100 mg/L feed concentration, were found to be around 12.8 L/m²h and 60%, respectively. Our findings suggest that using clay-based ceramic support, a low-cost zirconia ceramic composite membrane may be developed for the separation of metallic nanoparticles from their aqueous solutions.

Keywords

Gold; membrane; ceramic; zirconia; bacteria

Effect of Palm Stearin as a Compatibilizers in PBAT/Zein Blends Biodegradable Polymer

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Abstract

In this study, the introduction of PBAT was conducted through reactive blending with Zein, a renewable natural biopolymer derived from corn, in the presence of Palm Stearin (PS); one of the components in palm oil. The objective of this study is to examine the impact of mechanical forces on PBAT/Zein composites, both with and without the presence of PS. The PBAT/Zein and PBAT/Zein/PS blends will be subjected to various experiments, including mechanical testing and thermal analysis. Variation of different formulations of composition, comprised of PBAT, Zein and PS were used in this study. The thermal and mechanical properties of the PBAT/Zn blend were assessed through the utilization of mixing characteristics as well as thermal and mechanical properties. Based on the findings, it has been determined that the optimal composition for the PBAT/Zein blend is achieved when the blend contains 10% zein content. Furthermore, the optimal composition of PBAT/Zein/PS is achieved when 10 phr of PS are included in the blend.

Keywords

Palm Stearin, PBAT, Zein, Compatibilizer, Mechanical properties

Supply Chain Challenges in Ceramic Sanitary Ware: A Case Study and Solutions

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Abstract

In the fiercely competitive ceramic sanitary ware market, companies employ a range of strategies to meet consumer demands and expand their market presence. This study delves into a detailed analysis of the supply chain within a Thai-based ceramic sanitary ware company, employing the IDEF0 and SCOR models. The primary challenge revolves around the quality of raw materials, which can be traced back to weaknesses in the quality assurance and supplier selection systems. To effectively address this issue, the manufacturer can implement appropriate sourcing strategies, enhance supplier selection and evaluation processes, and institute a vendor development program. This comprehensive approach plays a pivotal role in mitigating the procurement, production, delivery, and return issues that have subsequently arisen. Ultimately, this research significantly contributes to ceramic sanitary ware supply chain management. It underscores the critical importance of resilient strategies and methodologies in tackling the complex challenges inherent in this industry.

Keywords

Sanitary Ware Factory, Supply Chain Analysis, Integration Definition for Function Modeling,
The Supply Chain Operations Reference Model

Intelligent Alerting System Development by Network Media Semantic Analysis and Face Recognition

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Abstract

Nowadays, the network has become the major data provider to everyone. Various providers feed data to the end users to achieve the flow of information for their own purposes. In this research, we develop an intelligent alerting system that can automatically semantic analyze the contents from the network and extract the altered information including event description and suspect's photo. We crawl the PTT, Dcard, and Google News in Taiwan as our sources to process due to the popularity of the three social network systems. These are the three very popular social media in Taiwan and real time events, news is always posted to the three media very soon, therefore, we adopt them as our research source. Video monitors installed on campus or in the community after receiving alerts and photos will enter alert mode. Real time face recognition will be issued for the people captured by the camera. Once the system recognizes the suspect, it will notify the security guard to take necessary actions to protect the people. There are two major parts to this research, the first one is the media semantic analysis and the second one is the real time face recognition. It is an intelligent alerting system that is capable to find out the suspected assault or rapist rapidly once he is captured by a monitor and recognized after people post the crime events to the media.

Keywords

altering, face recognition, intelligent system, media semantic analysis

Qualitative Research Approaches in Assessing Challenges during the Pandemic Covid-19

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Abstract

A prosperous family refers to a situation in which a family has adequate access to the physical, economic, social and health resources needed to meet basic needs and improve the quality of life. This article discusses the findings from qualitative data on the new normal life among Malaysians after the COVID-19 pandemic. The methodology used is in line with the objective of building a New Norm Life Model after the COVID-19 pandemic. Round table discussion which involved representatives from several ministries like Ministry of Energy, Science, Technology and Innovation, the Ministry of Education Malaysia, the Ministry of Digital Communications Malaysia, the Ministry of Finance Malaysia, and the Ministry of Health Malaysia. As a result, the government can come out with a better strategy and respond to future public health threats by streamlining physical and digital infrastructure and an adequate and efficient workforce. The government plays a significant role in creating an environment that supports the creation of a prosperous family through policies, social programs, and community empowerment.

Keywords

COVID-19 Pandemic, New Norm, Qualitative, Prosperous

Studies of Teaching and Learning English–Listening Skill: A Review and Bibliometric Analysis

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Abstract

This study aimed to conducted a comprehensive historical review and bibliometric analysis of the literature on English–listening (EL) education and mapped the current state of the field, trends, and emerging topics, as well as identified gaps where further research is needed. We retrieved 630 sample documents on EL teaching and learning in Scopus (1958–2022) under certain conditions and analyzed the extracted data using Excel and VOSviewer 1.6.17 from the perspectives of the number of yearly publications, countries, authors, citation numbers, and keywords. The findings show that the number of publications on EL education increased from 1958 to 2022 with peak increase in 2019. Then, it decreased in 2020 and increased in 2021. However, in 2022 there was a decrease in publications due to a lack of sustained engagement with this topic by researchers. The research topics showed a multidimensional trend, covering communicative skills, language knowledge, assessment, teaching or learning methods, ICT-related applications, and cognitive factors, of which ICT-related applications (such as flipped classrooms, blended learning, and e-learning) and cognitive factors (such as motivation, anxiety, and affect) were the areas of focus.

Keywords

English–listening skills, Bibliometric analysis, Research trends, Enlightenment, Research state

Educators' Resilience Amidst Digital Era Challenges: Case Study in Indonesia

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Abstract

This study aims to explore the coping mechanisms and resilience strategies employed by educators in response to the multifarious challenges posed by the digital era in Indonesia. The research objective centers on identifying and analyzing the various adaptive measures educators implement to maintain efficacy and well-being amidst the evolving educational landscape. A qualitative approach with case study research method was employed, focusing on a diverse group of ten educators, each facing distinct challenges. These informants were selected to provide a broad perspective on the resilience strategies utilized in various educational contexts. Data were collected through in-depth interviews, non-participative observation, and document study ensuring a rich and nuanced understanding of the educators' experiences. The analysis was conducted using a thematic approach, identifying recurring patterns and strategies across the informants' narratives. The research findings underscore the complexity of educators' resilience in the digital era. It reveals that educators' resilience is multifaceted, extending beyond mere technological adaptation. It encompasses a blend of emotional intelligence, interpersonal skills, and continuous learning, all of which are crucial in navigating the intricacies of modern educational environments. The study sheds light on the indispensable role of resilience and adaptability for educators in the digital age, providing valuable insights for educational institutions aiming to support their staff effectively.

Keywords

Educators, Resilience, Digital Era Challenges, Indonesian Teachers

The Impact of Stress on IT Employees' Health and Its Consequential Effects on Productivity

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Abstract

The IT industry is one of the most lucrative industries which motivates hundreds of employees to join the industry for future success every year. With digital technologies dictating every aspect of our lives, the IT sector is only going to grow and create immense opportunities for employees in the field. However, working in the IT industry is quite a daunting task due to the highly demanding job environment and fierce competition at all levels. This further leads to employees being subjected to stress while working at various positions in the industry and this in turn has an impact on their health and productivity. Hence, the aim of this research is to explore the impact that stress has on the health of IT employees along with its effects on improvement. Secondary sources of information have been collected in the process to provide a detailed idea of this area of research. It has been found that stress impacts employees at all levels- physical, mental and behavioural. The level of stress has a direct impact on the performance of the employees and in turn, affects the overall productivity of the organisation. It becomes important for the industry to take appropriate steps to manage stress and improve productivity in the process. Hence, all of these aspects have been discussed in detail in the below article.

Keywords

stress, IT, employees, health, productivity, physical, mental

Biaxial Hollow Slab Under Seismic Load

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Abstract

In reinforced concrete building structures, the slab is the component with the largest volume of concrete of all the superstructure components of the building. Various innovations were carried out both at home and abroad. Currently, the use of Hollow Core Slab (HCS) to reduce the load on building superstructures is widely used in Indonesia. Another type of slab that has been widely applied overseas is the use of Biaxial Hollow Slab (BHS) as an alternative to reduce slab concrete volume. BHS is considered capable of reducing concrete consumption by up to 30% -50% of conventional concrete without reducing the performance of the slab itself. It could be reducing the load on the working superstructure can reduce the influence of seismic loads on the foundation. Indonesia is a country with an earthquake zone, so the use of BHS must be considered with seismic design categories that are appropriate to the earthquake zones in Indonesia. This research is focused on giving information about the numerical study of application BHS in 10th story building with design seismic category D. The thickness used in this study is equivalent thickness of BHS to solid slab. The absence of beams in weak axis and the present of perimeter beam by utilization BHS, gives the result that this structure is safe due to seismic load.

Keywords

BHS, HCS, Seismic Load, Slab

A Comprehensive Study of Factors Affecting Labor Productivity of Tiling Work in Construction Sites

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Abstract

The research focuses on labor productivity in tiling work within the UAE construction industry, recognizing its pivotal role in project efficiency, cost-effectiveness, and timely completion. Tiling is a substantial component of construction projects, making it imperative to comprehend the factors influencing labor productivity to enhance overall industry performance and project outcomes. The problem centers on the unique challenges faced in this sector, such as management, finance, and workforce factors influencing productivity. The importance of this problem is emphasized by UAE development in the construction industry and its economic impact. Existing research primarily focuses on general construction labor productivity and lacks specificity to tiling work, as the absence of addressing a mathematical model for understanding how these factors collectively affect tiling productivity. The proposed methodology includes a two-phase online survey, integrating field data collection, and a regression model. Key findings highlight the significance of worker demographics, including age, qualification, and experience, in tiling productivity. The research is particularly useful for construction professionals, organizations, and policymakers operating in the UAE construction industry. However, the study has limitations, primarily related to the reliance on survey data and the specific context of the UAE. Nonetheless, its broader implications include the potential to improve labor productivity, enhance project efficiency, and contribute to the sustainable growth of the UAE's construction sector, benefiting both engineering practices and society at large. This study concluded with the top Ten affecting factors and a mathematical model was presented to predict labor productivity according to tile work description.

Keywords

Construction Management, Labor Productivity, Tiling, Relative Important Index, Regression Analysis

Analyze of Education and Training Using Ship Engine Simulators at STIP Jakarta Indonesia

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Abstract

On this research paper, we analyze Cadet Engineer, junior engineer, senior level Operational engineers, and senior management level engineers will carry out experiments using speed data from various scenarios on the ship engine simulator and then the experimental results will use educational and training analysis on the ship engine simulator to find out the right time. Later analysis also revealed that human errors occur due to the following reasons: Lack of knowledge of the overall system and fundamental operations, Insufficient confirmation of operations and Incomplete knowledge of the sequence of operations. the role of the instructor will be explained to reduce the causes of human error and to improve educational performance according to the implementation and development of each scenario based on expert justification and reference to IMO and SOLAS Standards. various safety procedure scenarios for all Engineers in the hope of minimizing accidents that cause loss of life at sea. For the purpose of training engine plant operations using a PC-based Engine Room Simulator (ERS), describe the features of human errors by incompetent trainees in marine engine plant operations and demonstrate the necessary improvements in training to reduce such errors from an educational technology point of view. Examination of these data has shown that errors occur primarily due to errors of omission and inadvertent action. Further analysis was carried out on these errors by the engineer trainees to determine the characteristics of errors caused in the process of acquiring procedural knowledge for operations according to the implemented development of various safety scenarios.

Keywords

Analysis of Education, Training, Ship Engine Simulator

Social Network Practices of Rural Food Processing Product by Msme Doers within the Projection of Digital in Kediri Regency Indonesia

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Abstract

The underlying idea of the research was the awareness of rural MSME doers to apply digital technology. Currently, the digital technology implementation has been increasing by 19 million MSMEs since 2022. Then, the targeted projection is – 30 million MSME doers in 2024 with the tagline “MSMEs go digital.” This matter could change communication, media, public space, and cultural power. This study comprehended and analyzed the MSME doers in Kediri regency that experienced the practical implementation changes of digitalization, starting from the expanding network process, system change, provision of separate spaces, and the efficiency of MSME doers by getting into the related communities and applying digital technology optimally in Kediri regency. This qualitative research applied an interpretative approach to reveal the truth, life reality, and multiple aspects to study various points of view. The researchers took the theory of Manuel Castells’ Network Society to explain the social network process of digitalization of MSME and its implementations. The researchers also observed the practices in Kediri regency. The results showed the networks of the MSME doers in rural food processing products based on digital transformation could establish social identity, experience development, power domination creation, and information capitalism.

Keywords

Digitalization, Rural MSMEs, Network Society, Kediri Regency

NS1 DENV Antigen Detection by Nanobody Ligands Using the Biotin Sensor: Working Principle

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Abstract

Dengue virus infection (DENV) is still one of the most common diseases in the world and commonly leads to death. Accurate early diagnosis is necessary to provide the right treatment. Non-structural protein NS1 (NS1) of dengue virus can be considered as a promising biomarker of viral infection. In general, monoclonal antibody is used as the biosensor which can detect and bind to NS1 as the antigen. Because of its better stability, higher solubility, and good ability to be genetically manipulated, nanobody is being widely developed to overcome the drawbacks of monoclonal antibody. Kinetic evaluation is important in designing a biosensor and can be done using Surface Plasmon Resonance (SPR). The small size (~15 kDa) of nanobody makes it difficult to be immobilized using EDC-NHS coupling methods. As an alternative, a biotin sensor with avidin sandwich binds biotinylated small molecules used in this study. The strong and specific binding between avidin and biotin ensures that the small molecules labeled with biotin are firmly immobilized on the sensor surface, leading to accurate and sensitive detection. Biotin-based sensors can also be regenerated by dissociation under appropriate conditions. Therefore, this study focuses on the working principle of biotin sensor which is used for evaluating the interaction between nanobody and NS1 antigen.

Keywords

NS1 DENV Antigen, Nanobody Ligands, Biotin Sensor

Improved Risk Matrix for Distribution Transformer in East Java: Analytic Network Process and Modified Total Ownership Cost

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Abstract

Many studies have been conducted on risk assessment in distribution transformers. However, previous studies have not fully considered the risk analysis and cost impact of damage to distribution transformers. In addition, the use of the Modified Total Ownership Cost Method is one comprehensive approach to calculating the cost implications of damage to distribution transformers. The use of risk matrix to determine likelihood factors and consequence factors still does not consider several factors, and the factors used often have equal weight and are interrelated. This study collects all the indicators used for probability and consequence factors in the risk matrix and applies the Analysis Network Process to give weight to those factors. The result is a more accurate risk evaluation model, supporting decision-making regarding investment in distribution transformers in East Java. A modified and weighted risk matrix was applied to 65 distribution transformers, of which 3 had low risk, 14 had moderate risk, 38 had high risk, 8 had very high risk, and 2 had extreme risk.

Keywords

Analytic Network Process, Distribution Transformer, Modified Total Ownership Cost, Risk Matrix

Displaced Workers During Pandemic: Stories of Resilience and Recovery

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Abstract

COVID-19 hit the world economy hard, and one of the setbacks during the pandemic was the displacement of workers due to lockdowns to avoid the virus. However, three years have passed, and much of the Filipino workforce has been left displaced, disrupting the lives of many, resulting from temporary layoffs to permanent unemployment. Thus, this study focused on the lived experiences of displaced workers during the pandemic, how they managed their difficulties, and the lessons they learned. The study used a phenomenological methodology to give meaning to the displaced workers' experiences as a single phenomenon. The 10 participants were chosen using the purposive sampling technique. One of the criteria for choosing the participants was that they were regular yet displaced employees during the pandemic. An in-depth interview was used in the study to collect the data. The researchers also ensured to follow the ethical considerations. Through thematic analysis, the study revealed that while some had a chance to spend more time with their families due to the pandemic, the participants struggled mentally, emotionally, and financially. To recover from these struggles, the study would like to highlight the participants' coping mechanisms, such as actively seeking new employment opportunities and adapting to the circumstances brought by the pandemic. Lastly, these participants could reflect on their experiences by strengthening their moral capacity to move forward in their lives as individuals. Based on the findings, the researchers recommend that future researchers use this study to explore innovative ways to support displaced workers and understand the intersection of economic changes with social factors.

Keywords

Displaced Filipino Workers, COVID-19, Workforce Challenges, Lived Experiences, Coping Mechanisms

Queer People in Business: An Exploration of Their Lived Experiences in Their Workplace

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Abstract

The Philippines is known to have a high level of queer social acceptance, indicating higher inclusivity and equality. However, in the business sector, queer people often face unique challenges as they navigate their careers in the business world. Consequently, these queer employees pay a high price for defying gender and sexual stereotypes in their workplace. Through a phenomenological lens, this paper aimed to comprehensively explore the experiences of these queer individuals in the business sector and the strategies they employ to navigate these difficulties. This study purposively selected seven participants of different work backgrounds to participate in in-depth interviews. The identities of these participants were kept confidential with respect to the ethical considerations. After gathering the data, the researchers used thematic analysis to provide a deep understanding of the lived experiences of queer individuals in the business sector, encompassing issues such as discrimination, unfair treatment, and gender stereotyping. Major findings of the study revealed that while the participants perceived their workplace as inclusive, they had their fair share of negative experiences that hampered their mobility in their work environments. Furthermore, despite their negative experiences, these participants learned different self-regulation coping strategies to manage their emotions and keep abreast with their work. Thus, the paper recommends that organizations with queer employees actively engage in symposiums and seminars to foster an inclusive workplace environment for all, as creating a safe and supportive workplace is essential for attracting and retaining employees, enabling them to thrive and contribute more effectively to the organization.

Keywords

LGBTQ+, workplace inclusivity, lived experiences, challenges, coping strategies

A Numerical Investigation of Seismic Load Analysis for a Concrete Gravity Dam Utilizing ABAQUS Software

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Abstract

Current research efforts focus on ensuring the safety of extant dams against seismic loads and designing earthquake-resistant new dams. Dependable analytical procedures are essential for a safe design that can withstand the forces induced by earthquakes. In this research, the Pine Flat Dam in California, United States, was subjected to modal, static, and dynamic analyses utilizing the Abaqus software to evaluate the impact of hydrostatic forces and dynamic stresses on the dam, taking into account flexible foundations. Using the horizontal component S69E and the vertical component Taft Lincoln School Tunnel earthquake data, dynamic linear and nonlinear performance for concrete gravity dam were conducted. The nonlinear analysis revealed a significant reduction in the maximal principal stress at nodal point 3 from 3.17 MPa to 1.31 MPa. However, there was no difference in minimum principal stress. In addition, the dam's maximum principal stress has shifted from its base to its neck. The findings from these analyses can contribute to enhancing new dam designs and evaluating seismic safety for existing dams. This study highlights the importance of accurate analytical procedures in ensuring dam safety and provides valuable insights into the behaviour of concrete dams during earthquake loading.

Keywords

Concrete gravity dam, Dynamic response, Finite element method, Seismic analysis

TRPM2–Associated Signalling Mechanisms in Copper–Induced Brain Microglial Phenotypic Transition

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Abstract

Copper (Cu) is one of the most crucial trace elements needed by all living organisms. It primarily serves as a cofactor for multiple key metabolic enzymes. Despite its critical role in the physiological processes, this metal is toxic when present in excess and may results in adverse health effects. Cu dyshomeostasis has been associated with multiple neurodegenerative diseases, including Alzheimer's disease (AD) and Parkinson's diseases (PD). Emerging evidences shows that Cu is able to exacerbate the progress of AD by triggering the activation of microglial cells. Additionally, extensive literature suggests the role of the transient receptor potential melastatin-related 2 (TRPM2) channel in mediating various neurodegenerative diseases. However, evidence showing the underlying signalling mechanisms involved in the TRPM2 channel activation evoked by Cu and how this relate to the microglial activation is still remain to be elucidated. We investigated the mechanisms by which Cu activates the TRPM2 channel in microglial cells and the relationships to microglial activation. Immunocytochemistry, single cell imaging, acridine orange/propidium iodide (AO/PI) cell death assay and immunofluorescence microscopy in combination with pharmacological interventions, were applied to interpret the aims of the current studies. We firstly found that 10–100 μ M Cu caused the concentration-dependent increases in intracellular Ca^{2+} concentration ($[Ca^{2+}]$). Such Ca^{2+} responses were abolished by pharmacologically inhibiting TRPM2 channel using, 2-APB and ACA. We further showed that exposure to Cu for 24 hr induced microglial activation, which was also suppressed in the presence of TRPM2 inhibitors. These results strongly suggest the critical role of TRPM2 channel in Cu-induced microglial activation. Further analysis indicate that Cu- induced Ca^{2+} responses and microglial activation were blocked by inhibiting poly(ADPR) polymerase (PARP) using PJ-34 and DPQ. Mechanistically, TRPM2 channel is activated via the stimulation of reactive oxygen species (ROS) production. Following the treatment with Cu, a robust increase in the intracellular ROS level was observed. Such effect of Cu on ROS level was not seen in microglial cells by inhibiting protein kinase C (PKC) using CTC, a PKC inhibitor and NADPH- dependent oxidase (NOX) using DPI, a NOX generic inhibitor and GKT137831, a NOX1/4–specific inhibitor. Additionally, Cu- induced Ca^{2+} responses and microglial activation were significantly inhibited by PKC and NOX inhibitors. Collectively, our results suggest that PKC/NOX- mediated generation of ROS and subsequent activation of PARP play role in Cu-induced TRPM2 channel activation, which eventually resulting in microglial cell activation.

Keywords

TRPM2 channel, Oxidative stress, Microglial activation, Copper toxicity, Neurodegenerative diseases

Development of Material Nanocellulose/TiO₂ Composites for Photocatalytic Degradation of Paracetamol in Aqueous Medium

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Abstract

Development of material nanocellulose/TiO₂ composites for photocatalytic degradation of paracetamol in aqueous medium has been studied. Raw material for the synthesis of nanocellulose (NC) was empty palm oil bunches (EPOB). The effects of TiO₂ loading on the synthesis of NC/TiO₂ composites (NCT) as photocatalyst and the photocatalyst concentration on photodegradation of paracetamol were carefully examined. The rod-shaped nanocellulose structures was obtained based on TEM analysis. Additionally, nanocellulose has been successfully composited with TiO₂, as corroborated XRD and FTIR analysis. The composite sample with TiO₂ loading of 70% on nanocellulose (30% NC/TiO₂) via sonication method evidently was outperformed other samples in photodegraded solutions containing 15 ppm of paracetamol, 2 g/L of photocatalyst for 4 hours until it meets the lowest concentration (1.43 ppm).

Keywords

nanocellulose, TiO₂, photodegradation, paracetamol

Serenivice: An Arduino–Driven Automated Flea Repellent Device with Computer Vision Integration for Cat Flea Management

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Abstract

In the domain of feline flea management, the use of traditional repellents can inadvertently expose humans to health risks arising from potential cat aggression or fear responses. These reactions, encompassing injuries, infections, and skin irritations due to direct contact with fleas, underscore the need for a more sophisticated approach. An innovative solution is presented: an automated flea-repellent device designed to administer treatment and attract cats without human intervention. This device is equipped with a sensor that triggers the emission of flea repellent spray, while strategically placed attractants entice feline companions to create a soothing environment. Accompanying this is an intuitive mobile application serving as an alternative control method equipped with a computer vision, which allows remote monitoring of cat and flea presence. Notably, this study assessed the device and application using ISO 25010:2011 software quality standards, focusing specifically on functional suitability, usability, performance efficiency, and portability. The results indicate an overall mean satisfaction rating of 4.53 out of 5.00, signifying its effectiveness and safety. Additionally, the FOMO MobileNet V2 0.35 attains exceptional precision, recall, and a perfect F1 score of 1.00 in identifying background instances. However, challenges in the cat class, with 62.8% accuracy and a 32.8% error rate, suggest opportunities for improvement. Meanwhile, the model excels with 100% accuracy in flea detection. The nuanced evaluation, reflected in F1 scores, indicates a perfect balance in the background class and moderate performance in the cat and flea classes.

Keywords

Automated Repellent Device, Feline Health Risks, Flea Management, Mobile Application Control

Factors and Obstacles Affected the Participation of Suburban Youth in Employment: A Study in Hulu Terengganu, Terengganu, Malaysia

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Abstract

The issue of youth employment faces a worldwide predicament. This study discusses the challenging youth unemployment situation in suburban areas of Terengganu. The study strives to explore the vital factors that contribute to these incidents, exploring the socioeconomic dynamics that influence employment opportunities for young adults in suburban areas. This study explores the complex concerns and obstacles that impact the participation of suburban youths in employment, including personal factors, family influence, and environmental effects, from an academic perspective. The study implemented a qualitative methodology, interviewing ten youth informants from Hulu Terengganu, Malaysia. Based on previous research and statistical data, the study provides possible approaches and strategies to diminish unemployment among young people in suburban areas. It aims to promote long-term economic progress and inclusive societal advancement.

Keywords

Youth, Employment, Unemployment, Suburban

Energy-Efficient Uniform Parallel Machines Scheduling Problem with Deterioration Effect

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Abstract

Uniform parallel machines "UPM" scheduling problems have been extensively studied because of their broad industrial applications. However, these systems are subject to deterioration. Therefore, preventive maintenance activities are integrated into the system, making unavailability periods. Meanwhile, deterioration and maintenance activities increase the energy consumption in the workshop. And with the growing environmental and global warming concerns, energy consumption has become a priority for manufacturers. Thus, we treat an unspecified uniform parallel machine scheduling problem with deterioration effect and maintenance activities to minimize the total consumed energy. First, we formulated an original mathematical programming model. This MILP model gives solutions for small instances in an affordable computational time. However, we proposed some lemmas throughout a mathematical analysis, and develop an LBH-SA algorithm to efficiently solve larger instances of the problem. To confirm the algorithm's performances, we test it for different instances, and compare its results with optimal solutions given by the model.

Keywords

Energy efficiency, uniform parallel machines, deterioration effect, maintenance activities

Effective Power Transformer Maintenance Strategy Decision Making: Health Index, Statistical Analysis, and Life Cycle Cost

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Abstract

As a State-Owned Enterprise, PLN is required to provide electricity for the public interest in sufficient quantity and quality but on the other hand according to the articles of association PLN is required to make a profit. Power transformer failures have a significant impact on electrical system reliability, as they can disrupt electricity delivery. Many studies have been conducted on health index of power transformer. However previous studies only considered health index from one or several aspect of testing result. Use of Life Cycle Cost is a method that helps select the best cost approach for selection of an effective maintenance strategy over the transformer's lifetime. Lifetime of transformer use a Weibull Analysis of failure transformer in PLN TJBT from 2017–2022. This study use a comprehensive health index by considering failure modes in transformers that integrate results from various aspects, such as observations while in operation, field inspections, on-site and laboratory testing. After conducting comprehensive health index, a risk evaluation was perform to simulate the impact of different maintenance decision. Considering health index and life cycle cost of transformer, a new maintenance decision making model was developed to choose the best maintenance strategy based on current condition of transformer.

Keywords

Power Transformer, Health Index, Comprehensive, Risk, Life Cycle Cost

Integrated Management Systems in a Crisis Situation

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Abstract

Crisis situations have far-reaching effects and an extraordinary level of uncertainty. In a crisis situation, the main goal of corporate crisis management is to maintain business continuity. Companies are using more and more management system standards to regulate their operations, of which the quality management requirement standard (ISO 9001) stands out based on its number. At the same time, it can be observed that companies operate their management systems as an integrated system, not independently, but together with other standard(s). In this study, I am looking for the answer to which areas in the integrated management systems were more emphasized. What extent are the standards able to ensure the complex management of organizations even in crisis situations. The results show that in the crisis situation, the centers of gravity in the integrated management systems shifted towards, among other things, attention to colleagues, communication, and risk management.

Keywords

crisis situation, integrated management systems, ISO standard, ISO 9001, colleagues, communication, risk management

Navigating the Cloud: Constitutional Challenges in Jurisdictional Issues for Cloud Computing

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Abstract

Cloud computing is a revolutionary technology that offers immense benefits in terms of data storage, accessibility, and scalability. However, it also raises significant concerns related to privacy, particularly in the context of the Indian legal framework. The rapid advancement of cloud computing technology has presented complex jurisdictional challenges that intersect with constitutional rights and legal frameworks. Cloud computing operates in a borderless digital environment, raising critical questions regarding jurisdiction and the applicability of constitutional rights. Traditional legal boundaries struggle to keep pace with the decentralized nature of the cloud, making it difficult to determine where data is physically located and which jurisdiction has authority over it.

Constitutional challenges emerge primarily in the context of privacy, due process, and protection against unreasonable searches and seizures. The Fourth Amendment of the U.S. Constitution, for instance, guarantees protection against unreasonable searches and seizures. However, in a cloud-based setting, determining what constitutes a reasonable search and which jurisdiction should oversee such actions is intricate. Further, data privacy becomes a concern when user data traverses multiple jurisdictions. Different regions have varying legal frameworks for data protection and privacy, leading to conflicts and potential violations of individuals' constitutional rights. This calls for having balanced technological innovation with fundamental constitutional principles being paramount to fostering a secured and just digital ecosystem.

This paper calls for an in-depth examination of the evolving landscape of cloud computing and its implications on constitutional principles. It will provide an overview of the constitutional challenges associated with the jurisdictional in the realm of cloud computing. The paper will also emphasize on the urgent need for legal and policy frameworks that can effectively navigate jurisdictional challenges, uphold constitutional rights, and ensure a harmonized approach to cloud computing governance.

Keywords

Cloud Computing, Privacy Concerns, Indian Jurisdiction, U.S. Jurisdiction, Constitutional Perspectives, Data Privacy, Legal Framework, Data Privacy, Balanced Technological Innovation

Dance Education Module Based on STEM, SEL, and Design Thinking

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Abstract

As science and technology continue to advance, and societal contradictions evolve, the focus on cultivating talent with core competencies adaptable to 21st-century developments has become a global concern. The shift in education from discipline-centered to a more comprehensive approach, moving from exam-oriented to quality-oriented, and transitioning from knowledge-centric to learner-centric methodologies, underscores the increasing prominence of student agency and the guiding role of educators.

This paper explores the integration of Science, Technology, Engineering, and Mathematics (STEM) education, Social and Emotional Learning (SEL), and design thinking. It elucidates the rationale for incorporating design thinking to harmonize STEM and SEL tools, proposing four core characteristics of STEM-SEL education: Collaborative learning supported by the Online-to-Offline (O2O) system, experiential learning facilitated by open-source hardware, personalized learning in the context of information technology, and innovative learning enhanced by technology. Drawing on constructivist learning theory, multiple intelligence theory, and innovation theory, this paper constructs a dance education module for primary schools. The module aims to cultivate students' comprehensive qualities and abilities through foundational knowledge acquisition, the establishment of assessment standards, project creation, presentation, and evaluation. This instructional approach serves as a guide for primary school dance education, contributing to the development of students' overall literacy and abilities.

Keywords

STEM, SEL, Design Thinking, Dance Education module

A Comparative Analysis of BERTopic and LDA in Identifying Key Challenges in the UAQTE Program

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Abstract

This research aimed to understand the issues and challenges encountered by beneficiaries of the Philippines' Universal Access to Quality Tertiary Education (UAQTE) program, using a comparative analysis of BERTopic and Latent Dirichlet Allocation (LDA) topic modeling techniques. The "Boses Ko" toolkit was utilized to gather student responses from the ground up. The study found that BERTopic excelled in semantic relevance and coherence, while LDA was effective in forming distinct clusters. The evaluation combined automatic metrics, such as silhouette and coherence scores, with domain experts' insights. Key themes identified included "Academic Difficulties," "Financial Difficulties," "Grant Disbursement," "Pandemic-Related Challenges," and "Program Implementation." The research concluded with actionable recommendations for the UAQTE program, advocating for enhanced academic support, improved financial assistance, flexible grant disbursement, strategies to tackle pandemic-related challenges, and establishing a structured feedback mechanism. These suggestions guide policy reforms, encouraging continuous evaluation to ensure long-term effectiveness in the educational sector. Overall, this study provides valuable insights into the application of topic modeling in educational policy analysis and emphasizes the need for nuanced model selection and interpretation for impactful policy development.

Keywords

Topic Modeling, BERTopic, Latent Dirichlet Allocation (LDA), UAQTE Program, Educational Policy Reforms

Palm Kernel Oil–Based Aviation Fuels: Paving the Way For Sustainable Air Travel in Indonesia

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Abstract

The major reliance on fossil fuels leads to escalating greenhouse gas (GHG) emissions. The quantification of GHG emissions can be determined by measuring the concentration of carbon dioxide (CO₂) released. A practical approach for reducing CO₂ emissions, specifically in the transportation industry, involves developing renewable aviation fuels as a substitute for fossil fuels. Indonesia uses palm kernel oil, as a feedstock for producing sustainable aviation fuel (SAF), which can mitigate CO₂ emissions effectively. Indonesia has executed a sequence of test programs to implement a 2.4% blending of SAF (J2.4) in flight operations by the end of 2023. This study investigates the feasibility of executing the J5.0 mandate in Indonesia by 2025, using the pilot project as a research foundation. The methodology includes a literature review, projections of aviation fuel demand and feedstock availability, and policy analysis. The opportunity for providing SAF is that the aviation fuel market is large and continues to grow. Nevertheless, the challenge is that the cost of SAF exceeds that of petroleum-based jet fuel. Research and development can facilitate cost reduction. The study results show that Indonesia's readiness in terms of feedstock and technology, as well as sufficient regulatory support, are essential to successful SAF implementation. This study suggests the mandatory implementation of SAF as a strategic measure to support the achievement of Net Zero Emission (NZE) goals in Indonesia's aviation industry.

Keywords

Sustainable Aviation Fuel, Palm Kernel Oil, Decarbonizing, Regulatory

The Affordability of Sustainable Aviation Fuel Adoption in Indonesia

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Abstract

Indonesia intends to gradually utilize Sustainable Aviation Fuel (SAF) as a strong commitment to decarbonize aviation emissions. Commercial flight trials with blended SAF J2.4 are in progress, targeting J5.0 by 2025. Despite reducing social costs, airlines are foreseen to incur higher expenses due to the elevated cost of SAF compared to conventional jet fuel. It poses a significant challenge as fuel costs contribute 35–45% of airplane ticket prices. Our study aims to assess SAF's economic affordability and propose funding mechanisms. We conducted mixed-method to assess domestic airfares through SAF market price and operational cost calculations. The findings indicate that implementing SAF results in higher costs for available seat kilometres, increasing airline ticket prices. However, this cost remains contingent upon the government's targeted SAF blending ratio. Furthermore, our analysis delves into three options of surcharges burden sharing for covering SAF surcharges, namely: (i) passenger surcharge, (ii) partially subsidized surcharge, and (iii) fully subsidized surcharge. The possibility of a partially subsidized surcharge is considered the fairest approach, as it shares the surcharge burden between the government and society. Public responsibility is pivotal in expediting the transition to SAF and balancing sustainability concerns and economic affordability. Nevertheless, revisions to the prevailing regulations for jet fuel surcharges are recommended, as they currently allocate only 10% of the upper limit tariff.

Keywords

Sustainable Aviation Fuel, Fuel Surcharge, Affordability, Policy Options

A Comparative Study of Raw Material Sustainability for Clean Energy: Batteries vs Biodiesel

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Abstract

The Indonesian government has initiated the adoption of batteries as a substitute for fuel oil energy sources consumed for motorized vehicles as part of the energy transition towards net zero emissions by 2060. Batteries have the capacity to store electrical energy and are currently utilized in electric vehicles. Nevertheless, the production of batteries relies on the availability of nickel as a finite natural resource, subject to specific limitations. To properly evaluate the suitability of nickel reserves in Indonesia as primary battery materials, conducting a comprehensive analysis of the current and potential reserve capacity of nickel is very essential. Correspondingly, comparing the battery availability for long-term viability side by side with the potential of palm oil-derived biodiesel in Indonesia is also crucial. A far-reaching literature review exhibits that battery raw materials have finite natural reserves and will eventually be depleted. On the other hand, Indonesian palm oil productions are expected to continue growing and produce 104 million tons of palm oil annually by 2050, which can be produced sustainably to meet the need for biodiesel as a substitute for total diesel fuel. The projected growth will be achieved through the implementation of a strategy by prioritizing the replanting and improvement of the plant material.

Keywords

Electric Vehicles, Batteries, Nickel, Biodiesel, Palm Oil

Management of Steam Power Plant Operation Patterns by Using CPFD Based Technology to Analyze Fuel Fluidization Characteristics in CFB Type Boiler

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Abstract

The need for electrical energy nationally continues to grow every year, the government has issued a national energy policy. Consideration that most of the 86.59% of the national coal reserves are low rank coal types, namely subbituminous and lignite with high sulfur content characteristics. Circulating Fluidized Bed (CFB) Boiler PLTU Labuhan Angin has fuel flexibility and lower emission. The flow in the Circulating Fluidized Bed (CFB) Boiler of PLTU Labuhan Angin is very non-linear with non-uniform constituent materials including bed particles, coal and limestone, so geldart classification must be carried out. In CFB boilers, generally have a gas-solid system characteristic, namely the recirculating loop of particles separated into the reactor from the carrier fluid in a process that must run efficiently. Under operating conditions, the particle flux reaches a high particle flux of 10–1000 kg/m² and a high superficial flux gas velocity of 2–212 m/s, so it is very possible to damage caused by wear. In order to maintain operational continuity, reliability and efficiency of power plants, improvement programs need to be carried out, one of which is related to carrying out Computational Particle Fluid Dynamic (CPFD) simulation models on the Circulating Fluidized Bed (CFB) Boiler PLTU Labuhan Angin. In this thesis, an analysis of fluid flow characteristics and particle motion in the combustion chamber of PLTU Labuhan Angin 2 × 115 MW carried out using a Computational Particle Fluid Dynamic (CPFD) simulation. The simulation carried out under normal operating conditions at the combustion chamber temperature which is close to the operating conditions at the design generating capacity (115 MW/unit). Computational Particle Fluid Dynamic (CPFD) simulation modeling in the Circulating Fluidized Bed (CFB) Boiler PLTU Labuhan Angin is expected to be used to determine the velocity of gas and particle flow in the combustion chamber, temperature distribution in the combustion chamber, the dominant area of erosion potential as a baseline for geometry modification and recommendations. operation optimization programs.

Keywords

CFB Boiler, Fluidization, CPFD, Geldart Classification, Erosion

Employee Performance Data Management and Analysis of Ilocos Sur Polytechnic State College through Human Resource Information System Application

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Abstract

This research aims to explore the use of Human Resource Information System (HRIS) in managing and analyzing employee performance data at Ilocos Sur Polytechnic State College (ISPSC). The study utilized a descriptive and developmental research design and collected data through survey questionnaire and interviews with HR personnel and employees. Results showed that the college had implemented an HRIS system to manage employee records and performance data, but there were challenges in its use and adoption by employees. The study also found that the HRIS system had enabled the college to generate various reports and analyses on employee performance, which had helped in decision-making and planning. Recommendations were provided to improve the use and adoption of the HRIS system, such as providing training and support to employees and enhancing the system's functionality. Overall, the study highlighted the importance of HRIS in managing and analyzing employee performance data, which can contribute to college's overall performance and success.

Keywords

Human resource information system, employee performance, institution, agile methodology, ISO 9126-1

Analysis of The Influence of Leadership Style, Career Progression, Rewards, and Punishments on Employee Performance in Dinas Kesehatan Kabupaten Jombang

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Abstract

An organisation's ability to achieve and meet various goals and challenges depends on resource management. Several aspects must be studied to understand their impact on organisational employee performance, such as leadership style, career progression, rewards, and punishments. This research analyses the relationship between leadership style, career progression, rewards and punishments, partially and simultaneously, on performance at Dinas Kesehatan Kabupaten Jombang. This study surveyed 118 respondents, consisting of 91 Civil Servants (PNS) and 27 Non-Civil Servants (Non-PNS) at Dinas Kesehatan Kabupaten Jombang. To answer the problem, this research will develop an empirical research model using 5 research variables, namely leadership style, career path, reward, punishment, and employee performance. The four variables will be formulated into 5 research hypotheses. This research uses primary data obtained directly from respondents through distributing questionnaires with a total of 100 respondents and data analysis using PLS-SEM. The results showed that leadership style affects employee performance. Meanwhile, career path, reward, and punishment each have no effect on employee performance.

Keywords

Leadership Style, Career Path, Reward, Reward, Punishment and Employee Performance

The Ability to Innovate and Adaptability to Create New Business Models Helps Businesses Recover Faster: A Case Study of SMEs in Vietnam

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Abstract

The COVID-19 pandemic has had effects not seen in other crises, and SMEs are attempting to recover in the economy, according to one conclusion that may be made from the study's findings on the economy after COVID-19. The main goal of this study is to analyze the connection between knowledge management and company resilience. The study involved surveying 100 individuals and using SmartPLS4 to analyze the results. The data was highly reliable, with a Cronbach's alpha of 0.938 and an R square value of 0.887. The results revealed that knowledge management significantly promotes corporate resilience, and the research model can be applied to many businesses.

Keywords

Knowledge management, employee engagement, Enterprise resilience, small and medium enterprises, COVID-19

The Resilience of Entrepreneurship during the COVID-19 Pandemic: Evidence from Successful Entrepreneurs in Vietnam

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Abstract

Nowadays, one of the biggest global concerns is the recovery of small and medium enterprises (SMEs) after the COVID-19 pandemic, as it has caused severe consequences to many of these businesses, leading to organization collapses and closures. To overcome this crisis, SMEs need to adapt to the new reality and plan for change. This study examines the resilience of SMEs in the post-COVID-19 context by exploring entrepreneurship, innovation adaptation and networking relationships. The authors have collected data from 100 SMEs in Northern Vietnam, with 21 questions for entrepreneurs who have experienced the pandemic. The responses were extremely positive, and the Smart PLS analysis of the SEM model showed a feasible research model with an R-squared value of 0.674, Cronbach alpha of 0.681 and composite reliability. The chosen factors were closely related to each other, and their relationship was quite consistent.

Keywords

Business resilience, Covid-19, SMEs Entrepreneur, SmartPLS, innovation, entrepreneurship

Enhancing Cybersecurity Education with Virtual Labs on Cloud

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Abstract

Cybersecurity is a rapidly evolving and highly demanded field that requires both theoretical and practical skills. However, teaching cybersecurity in traditional classroom settings can be challenging due to the lack of resources, ethical issues, and outdated technology. In this paper, we propose a framework for using virtual labs on cloud as a complementary tool for cybersecurity education. Virtual labs are cloud-based digital simulations that emulate real-world environments and scenarios for students to practice their skills. We discuss the benefits of virtual labs, such as safety, accessibility, scalability, and diversity, as well as the challenges and recommendations for implementing them in the curriculum. We also review some of the existing platforms and content for virtual labs, and provide examples of how they can be used in different courses and levels. We conclude that virtual labs on cloud can enhance the quality and effectiveness of cybersecurity education and prepare students for the future workforce.

Keywords

Cybersecurity, Virtual labs, Cloud-based simulations, Education

Deep Learning Modeling for Local Wildflower Recognition

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Abstract

Bangladesh is a small country surrounded by greenery. This nation is coated in a variety of lush vegetation, including grasses, flowers, and trees. As time passes, the atmosphere and soil also alter. Because of this, many people are unaware of the true names of many flowers, and some are currently in danger of going extinct. It will be challenging for the new generation to learn about these flowers. Bangladesh is home to a wide variety of regional flora. The datura metel, hill glory bower, and periwinkle plants will be the subjects of our effort. We used four deep neural network models VGG-16, VGG-19, MobileNetV2, and Resnet50 to carry out our research. We gathered a data set of images of three local wildflowers, i.e. datura metel, hill glory bower, and periwinkle flower images, processed them beforehand, and taught the four deep learning models on them separately. We used the holdout method to evaluate each of the four deep-learning models. For each of these models, we tuned different hyperparameters and came up with the best-configured model. Following successful testing, we discovered that the VGG-19 model had performed the best classification performance exhibiting an accuracy of 99.2%.

Keywords

Wild Flower, Transfer Learning, Convolutional Neural Network, VGG-19, Performance Measures, Accuracy

Interactive Learning: Fostering Speaking and Writing Skills Through Prepositional Games

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Abstract

The author experimented with an innovative and practical game-based classroom method aimed at developing English speaking and writing skills among primary level students, the details of which were presented and discussed in this paper. The proposed method was experimented with the students of classes 4 and 5 of a government school in Andhra Pradesh. Followed game based methodology to teach different types of prepositions to the students and the results were presented in this paper. The rationale behind the proposed method and details of the game were presented in the paper. In each class, the proposed activities were conducted in the traditional (control) method as well as the proposed method. The performance of the students in terms of speaking skills was assessed, using both quantitative and qualitative methods, through one-on-one interactions, and general classroom responses. A comparison of the results of two methods was made to evaluate the effectiveness of the proposed method. Encouraging results were obtained with the proposed method, with an improvement of about 40 % to 55% along with a perceptible positivity in active student participation and classroom engagement.

Keywords

Game Based Method, Prepositions, Speaking Skills, Writing Skills

Productivity Improvement of Coal Hauling using Lean Techniques: A Case Study in Coal Mining Company in Indonesia

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Abstract

The adoption of the lean concept as a company strategy to create competitive advantages and provides important savings opportunities has been increasing recently. Its application has been extended from manufacturing to almost all types of industry including coal mining under the realization of the need for productivity improvement and the need for efficient operation. However, published information and articles showing the real application of lean in the mining sectors are still scarce. The objective of this paper is to show the application of lean production method in coal hauling operations in one of coal mining company in Indonesia. The lean method with Plan, Do, Check, Act (PDCA) cycle has been utilized to identify, analyze and improve productivity. The main result of this study reveals that implementing lean increase the productivity of coal hauling operations from 115 to 129 tons per hour. Statistical test using two sample t-test confirmed the significance of the result. This paper demonstrates lean application in coal hauling operations and bring significant result.

Keywords

Productivity, Improvement, Lean, Hauling, Mining

The Analysis of Psychosocial Factors on Maintenance Employees of an Electrical Service Company in Safety Perspective

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Abstract

The increasing number of employees continuously exposed to psychosocial hazards can result in high absenteeism, employee turnover, low productivity, and increased work accidents. Efforts to improve occupational safety have typically focused on developing policies, equipment, and training to minimize physical risks; however, in recent years, attention has also shifted to psychosocial factors. This research was conducted to comprehensively analyze the psychosocial conditions of maintenance workers from electrical service companies in Indonesia. An online survey with 93 questions from COPSOQ III was conducted on 314 respondents who had worked for at least one year and were permanent employees at company X. The collected data will be tested for validity and reliability before being analyzed using descriptive statistics with the help of SPSS V25 software. It will then be classified by level using the gap analysis method. It was found that there were six psychosocial factors included in the mid-gap category, namely Cognitive Demands (X9), Work Pace (X12), Illegimate Task (X25), Role Conflict (X26), Work-Life Conflict (X31), and Insecurity over Working Condition (X32). Meanwhile, two psychosocial factors fall into the high-gap category, namely Control over Working Time (X17) and Job Insecurity (X33). Psychosocial factors in the high-gap category need to be a priority for improvement or intervention, considering that these factors can have a negative impact on work safety behavior, which can increase the number of work accidents.

Keywords

Psychosocial, Safety Behavior, COPSOQ III, Gap Analysis.

A Review on Socioeconomic Impact of Dam–Failure Flood Risk and Sendai Framework Effectiveness: Analysis and Gaps

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Abstract

Dam failures leading to floods pose a global threat to communities, prompting a closer look at their socioeconomic effects. This review explores how well the Sendai Framework for Disaster Risk Reduction (SFDRR 2015–2030) has been integrated into previous research as a key guideline. Existing research and practical efforts have identified gaps, particularly in understanding the correlation between dam failure and socioeconomic impact towards SFDRR effectiveness as a functional blueprint for risk mitigation. To address this gap, the present study strategically explores previous research on the role of the SFDRR in guiding the community regarding socioeconomic impact assessment. Using the content analysis method, the authors systematically analyze and evaluate the findings of scholarly articles by synthesizing past contributions and highlighting the gaps regarding SFDRR's influence towards socioeconomic impact elements. As efforts continue to enhance the effectiveness of the SFDRR, addressing these challenges becomes imperative for achieving a more comprehensive and resilient approach to disaster risk reduction. This is a critical aspect for informing policy decisions and allocating resources for effective response and prevention measures in future.

Keywords

Dam failure, flood risk, Socioeconomic impact, SFDRR, disaster risk preparedness, and community at-risk

Assessing the Community Engagement Practises by the Universities through a Comprehensive Measurement Index

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Abstract

Community engagement by universities holds importance as the output a university produces should be socially relevant. Community university engagement refers to the university and community working together for a common welfare goal with equal ownership. Community engagement practises are less standardized globally, unlike teaching-learning and research. Therefore, the research aims at identifying the factors for the measurement of community engagement in universities to systematise its practice. The quantitative study is conducted on 99 faculties of both private-owned and public-owned universities. The research proposes some motivating factors that make faculties do community engagement. Also, 17 factors are suggested after reviewing the interviews and the literature for preparing a comprehensive measurement index of community engagement. Literature does suggest different factors for assessing community engagement among universities but none of them primarily talks about community engagement in the Indian system of higher education. This research will sensitize the readers, especially the policymakers to the factors that motivate faculty to do community engagement. The study will also make academicians rework their community engagement more systematically. The study altogether takes a global approach, although, the analysis part is restricted to Indian academicians.

Keywords

Assessment, Community Engagement, Faculty, Higher Education

Safeguarding Privacy, Ensuring Ethics: Exploring Implications of Data-Driven Workforce Planning in State Universities and Colleges

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Abstract

Organizations such as State Universities and Colleges (SUCs) recognize the critical importance of data-driven decision-making. Despite the promising benefits of data-driven decision-making, there are unavoidable ethical issues and privacy risks associated with access to workforce data. However, these risks have been limitedly researched particularly in the context of Higher Education Institutions (HEIs) such as SUCs. In line with this, this study sought to explore the implications of data-driven workforce planning in the context of SUCs. The researcher adopted the mixed method approach where a survey was conducted to ten (10) HRMO/HRDO in various SUCs in the Philippines. The survey aims to gather both qualitative and quantitative data regarding perceptions, and experiences towards data-driven workforce planning. The analysis revealed that data such as enrolment projection, offered academic programs, faculty-student ratios, skills and expertise demand analysis, retirement and attrition rate, and faculty-staff ratio facilitate a more precise and tailored approach to forecasting and meeting the workforce demand for academic and non-academic positions. With these data, SUCs perceived that Data Privacy and Consent, Anonymity and Confidentiality, and Consistency with Legal Requirements are among the top ethical considerations in data-driven workforce planning. Likewise, the Misinterpretation of Data, Privacy Violations, Data Security Breaches, and Legal and Regulatory Consequences, emerged as the top ethical dilemmas and data privacy implications. Therefore, SUCs need to establish policies taking into consideration the findings of this study to achieve the right balance between harnessing employee data for planning purposes and upholding ethical standards while ensuring robust data privacy controls.

Keywords

People Analytics; Workforce Data; Workforce Planning; Data Privacy; Data-Driven; Ethics; State Universities And Colleges; Ethical Dilemmas

Design and Development of Internet-of-Things (IoT) Devices for Floating Solar Photovoltaic System Control and Monitoring

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Abstract

The Internet of Things (IoT) is a network connecting various physical objects like devices, vehicles, and household appliances, which are equipped with electronics, software, sensors, actuators, and network capabilities. These interconnected objects are capable of gathering and exchanging data, thereby more seamlessly integrating the physical world with digital systems. This integration enhances efficiency, offers economic advantages, and minimizes the need for human intervention. Despite these benefits, implementing IoT in certain areas, such as floating solar photovoltaic (FSPV) systems, remains challenging. This study presents the development of an IoT-based system designed to monitor and control environmental and electrical hazards, including current, voltage, wave movement (roll and pitch), wind, temperature, and humidity, for a small-scale floating solar PV system in Lake Mainit, Philippines. The project involved assembling, testing, and integrating eight IoT devices, each attached to a solar panel, resulting in one device per panel. Additionally, a weather station was established to observe wind conditions and manage the FSPV system's energy transfer to the battery charging station. The data from these IoT devices were wirelessly transmitted to a nearby station via WiFi, and visual representations of the data were generated for analysis. The IoT system proved effective for straightforward monitoring purposes.

Keywords

Internet-of-Things (IoT), Solar Photovoltaic System

Forecasting Student Academic Performance with Predictive Analytics in Higher Education: A Systematic Literature Review

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Abstract

This systematic literature review examines predictive analytics and machine learning (ML) applications in educational settings from 2019 to 2023. Machine Learning (ML) algorithms are increasingly used to predict students' academic performance and are integral to early warning systems in educational settings. The study looks at several algorithms, from simple linear regression to more complex ensemble and neural network models. It also looks at how well they work in different types of schools and with different kinds of students. The analysis confirms that ML models provide educators with actionable insights to identify and support at-risk students.

Along with evaluating predictive performance, the review discusses the ethical problems of using machine learning in education. These include worries about data privacy, the need for openness, and the possibility of bias in algorithmic decision-making. The paper concludes that while ML holds substantial promise for enhancing educational outcomes, its deployment requires prudent management to navigate the intersection of technological innovation and ethical practice, ensuring the responsible use of data analytics in shaping the future of education.

Keywords

Machine Learning In Education, Educational Data Mining, Academic Performance, Ethical Considerations, Forecasting

The Intelligent System for Low Recourses Languages for Expanding Language Recourses

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Abstract

This research, funded under the BR11765535 “Development of Scientific and Linguistic Foundations and IT Resources to Expand the Functions and Improve the Culture of the Kazakh Language” project, is aimed at the need to develop the scientific and linguistic foundations of the Kazakh language with a special focus on anthroponymy. The “Akhmettanu” intelligent system, which includes digitized materials based on the scientific heritage of Akhmet Baitursynuly, consists of an ontological model of knowledge on the structural layers of the language, a Kazakh language user interface with the function of adding and correcting new digitized materials. Digitized materials based on the scientist’s work “Language-Tool” include a new system of knowledge about the sound, word and sentence system of the language. The main aim of this system is to promote the scientific heritage of Akhmet Baitursynuly by promoting the further development of digitalized knowledge and information tools that affect the development of the Kazakh language.

Keywords

Intelligent system, Kazakh language, Ontology, Semantic knowledge base

Development of the Mobile Application “Fascinating Onomastics” based on Semantic Base of Knowledge

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Abstract

This research, funded under the BR11765535 “Development of Scientific and Linguistic Foundations and IT Resources to Expand the Functions and Improve the Culture of the Kazakh Language” project, is aimed at the need to develop the scientific and linguistic foundations of the Kazakh language with a special focus on anthroponymy. Through the use of descriptive and historical methods, the research creates a semantic knowledge base for Kazakh proper names. This extensive database forms the basis of the innovative mobile application “Fascinating Onomastics”, developed using the Flutter 3.0 framework. The application serves as an innovative resource allowing users to study Kazakh anthroponymy with features such as name search, favorites and the ability to add new names. The study revealed about 100 properties that affect the structure of proper names, contributing to a deeper understanding of Kazakh onomastics. The technical and economic effectiveness of the application is highlighted by its potential to increase cultural awareness, promote cultural tourism and be used as an economically viable product. In addition, this study has a high scientific and technical status, offering an unprecedented contribution to the study of Kazakh onomastics and cultural heritage. The application “Fascinating Onomastics” with its rich semantic features and interface in the Kazakh language is becoming an important milestone in achieving scientific, cultural and educational goals.

Keywords

Anthroponymy, Kazakh Language, Mobile Application, Semantic Knowledge Base

Development of an Electronic Dictionary of Terminology for School Textbooks

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Abstract

This research, funded under the BR11765535 “Development of Scientific and Linguistic Foundations and IT Resources to Expand the Functions and Improve the Culture of the Kazakh Language” project, aimed at advancing the scientific and linguistic foundations of the Kazakh language and enhancing its role in interethnic communication through digital resources. Focusing on the urgent need for specialized digital terminological dictionaries for school subjects, the project addresses the limitations of existing resources, particularly for school students. The article discusses the criteria for inclusion in the terminological dictionary, emphasizing the significance, frequency, and thematic relevance of terms across various subjects. The project has undertaken the compilation of a comprehensive database covering key school subjects in the Kazakh language.

Keywords

Electronic Dictionary, Textbooks, Electronic Textbooks

Electronic Dictionary System of Terminology for School Textbooks with Speech Synthesis Function

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Abstract

This research, funded under the BR11765535 “Development of Scientific and Linguistic Foundations and IT Resources to Expand the Functions and Improve the Culture of the Kazakh Language” project. The article introduces an electronic dictionary allowing users to look up definitions of terms found in school textbooks. The system accommodates the age characteristics of students, providing a voice-guided interface for primary school students. Users include administrators, specialists with database access, and general users. The article details the algorithm for creating terminology, the user interface, and functionalities for guests, experts, and administrators. The proposed system facilitates equal access to education and aligns with inclusive educational environments.

Keywords

Electronic Dictionary, Textbooks, Electronic Textbooks

Speed Control of BLDC Motor using Pi Controller in MATLAB Simulink

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Abstract

Nowadays, there are more and more variable speed drive systems in small-scale and large-scale applications such as the electric vehicle industry, household appliances, medical equipment and other industrial fields. led to the development of BLDC (Brushless DC) motors. BLDC drive has many advantages such as higher efficiency, better speed torque characteristics, high power density and low maintenance cost compared to other conventional motors. Most BLDC motors use a proportional integral (PI) controller and a pulse width modulation (PWM) scheme for speed control. This article describes the simulation model of BLDC motor drive control with the help of MATLAB - SIMULINK simulation software. The built simulation model includes BLDC motor dynamic block, Hall sensor signal generation block, inverter converter block and PI controller.

Keywords

Brushless DC Motor; BLDC; Six-Step Inverter; PI Speed

Ethical and Privacy Issues in the Use of Machine Learning for Personalized Care for Persons with Disabilities

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Abstract

Machine learning remains the future of care personalization, especially in caring for persons with disabilities. However, critical ethical and privacy challenges arise, which potentially derail the deployment of machine learning technologies. This research has explored these challenges, considered possibility of machine learning being used to resolve the challenges, and examined the policy and governance frameworks that could be used to address the problem. The study adopted a scoping review method, where a scoping review process was conducted for each of the three research questions. This approach made it possible to offer an in-depth assessment of all aspects of the research problem. The findings support the available literature by establishing that critical privacy and ethical challenges exist. These challenges fall under three main categories: the technology, practice, and data. Like any other technology, machine learning is vulnerable to malicious activity and its use could breach patient privacy. Since it involves handling patient data, there is a possibility that the handling of the data itself poses privacy and ethical risks.

Keywords

Artificial Intelligence, Big Data, Data Analytics, Data Privacy, Machine Learning

Emotional Exhaustion in Morocco: Quantitative Analysis of Influencing Factors among Executives

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Abstract

The objective of this study is to explore the relationship between the individual and their organization, with a particular focus on emotional exhaustion. Using a mixed empirical approach, we aim to better understand the causes of emotional exhaustion, thus providing in-depth insights into this critical dimension of the connection between individuals and their professional environment.

Following the conclusions of the qualitative study conducted with fourteen executives experiencing emotional exhaustion, we implemented a questionnaire to assess the extent of this phenomenon. A survey of 327 executives in the Moroccan private sector was conducted to validate the quality of measurement scales, the overall model, and research hypotheses. The analysis of the data collected during this survey reveals the significance of workplace monotony, role ambiguity, and recognition at work in triggering emotional exhaustion.

Keywords

Emotional exhaustion; Quantitative study; Moroccan executives; PLS method

Application of the Aggregation and Multicriteria Optimization Method in Assessing the Level of the Knowledge Economy of World Regions in Industry 4.0

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Abstract

The article proposes a new methodology for determining the level of the knowledge economy of countries in terms of the possibilities of using Industry 4.0 technologies. The relevance of the study is due to the transition to a new technological structure – “Industry 4.0” in the world. The aim of the study is to analyze data on the main sub-indices of the knowledge economy associated with Industry 4.0 for countries around the world based on the author’s methodology. As a tool for this analysis, the k-means++ clustering method was used to classify countries according to their characteristics. The assessment of the potential of Industry 4.0 is determined on the basis of 5 criteria characterizing various aspects of the development of countries at the level of economic knowledge. In the calculation process, determining the extent to which the indicators used describe the level of the knowledge economy, and the use of the aggregation formula and multi-criteria optimization, constitutes the scientific novelty of the study. It was concluded that as a result of clustering the countries of the world using the formula Aggregation and Multicriteria Optimization, the number of clusters decreased and the distribution of countries between clusters began to more adequately reflect reality. The results of the study can be used in the process of assessing the competitiveness of countries during the transition to the Industry 4.0 economy, as well as in developing strategies and concepts for countries.

Keywords

k-means++, Industry 4.0, knowledge economy index, метод Elbow и F-ratio

The Revolutionary of I.R. 4.0 Digital Fashion Marketing in Fashion Design Studies for Malaysia Institution

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Abstract

Fashion marketing plays a crucial role in the creative Industrial Revolution (IR) 4.0, which is characterized by the integration of digital technologies, data analytics, automation, and connectivity. There are many marketing tools that can be used as a strategy to market their fashion products to consumers. The objective of this research is to identify the significant of digital marketing methods that influence the current existing fashion products in Malaysia. The researchers use qualitative method to collect data from 193 respondents including fashion students (n=99), lecturers (n=34), fashion designers (n=16), fashion entrepreneurs (n=13) and others (n=31), in Malaysia to fulfill set of questionnaires that focus on the importance of Industrial Revolution 4.0 in fashion marketing strategy knowledge. According to the data collection based on online business platform, 61% of the respondents (n=117), purchasing clothing items including menswear, womenswear and childrenswear. The 23% of the respondents (n=45) chose fragrances & cosmetics, 8% respondents (n=16) preferred leather goods and accessories, 7%(n=15) choose to purchase others personal care product related to hair and nail maintenance. By purchasing the items, some respondents indicate that their preferences are a necessary item need to spend and it is compulsory which 53% of respondents mentioned needs but the other 47% justified as a consumer behavior want to purchase. Regarding the purchasing decision of respondents, 76% of them (n=146) are influenced by the social media and electronics media platform, 17% of respondents (n=33) are influenced by mass media such as online television promotion and the rest 7% of respondents (n=14) choose to decide by product information on printed media such as brochures and pamphlet. This research shows that the digital fashion marketing studies and understanding is very important to fashion practitioners in order to enhance the productivity and creativity in developing marketing strategies. In revolutionary of IR 4.0 scenario, it is very useful to implement the current digital fashion marketing via online platform that will improve fashion retail industries in Malaysia and to abroad the market. It is also one of the initiative and awareness to educate the fashion practitioners and consumers in sustaining and practicing the SDG17 in daily lifestyle.

Keywords

Business marketing, Digital fashion marketing, Fashion product, Fashion practitioners, Industrial Revolution 4.0

The Effect of Service Failure and Service Recovery on Pln ULP Helvetia Customer Satisfaction with Customer Trust as Intervening Variables

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Abstract

PLN ULP Helvetia is one of the units of PLN UP3 Medan Utara which is responsible for serving the community in meeting electricity needs and providing the best performance in a sustainable manner, especially in administrative and electricity services. However, PLN ULP Helvetia has complaints from customers ranging from frequent power outages, as well as poor service from customer service whose slow response makes customers feel disappointed with the service which can lead to service failure.

The aim of this research is to analyze the influence of service failure and service recovery on PLN ULP Helvetia customer satisfaction with customer trust as an intervening variable. The population of this research is PLN ULP Helvetia postpaid electricity customers with a total sample of 397 samples using the Slovin formula. Data analysis was carried out with SEM (Structural Equation Modeling) using the SmartPLS 3 program.

The results of this research show that based on the indirect influence test, it was found that the service failure variable had a negative and significant effect on customer satisfaction through trust as an intervening variable with a coefficient value of -0.138 with a p value of $0.001 < 0.05$, the service recovery variable had a positive and significant effect on customer satisfaction through trust as an intervening variable with a coefficient value of 0.186 with p values $0.00 < 0.05$. Managerial implications and suggestions for improvement for PLN ULP Helvetia will also be explained at the end of this research section.

Keywords

Service Failure, Service Recovery, Customer Satisfaction, Customer Trust

The Influence of Individual Characteristics and Effective Communication on Employee Performance through Job Satisfaction at PT PLN (Persero) UP3 Medan Utara

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Abstract

The State Electricity Company (PLN), especially in the city of Medan, is one of the State-Owned Enterprises (BUMN) which provides services to the community in the form of providing electricity to the community. From a government perspective, BUMN is often used as an important instrument in economic development, especially development in the manufacturing industry and so on. Meanwhile, from the community perspective, BUMN is an important instrument as a provider of fast, cheap and efficient services. Therefore, PT PLN (Persero) UP3 Medan Utara always strives to continuously update its performance in providing increasingly optimal services, so that improving the quality and effectiveness of work becomes very important because the progress of a company is determined by the performance of its HR (Human Resources).

The aim of this research is to analyze the influence of individual characteristics and effective communication on employee performance through job satisfaction at PT PLN UP3 Medan Utara. This type of research is associative research with a quantitative approach. The population of this research is permanent employees of PT PLN UP3 Medan Utara with a sample of 112 respondents. Data analysis was carried out using descriptive analysis and SEM (Structural Equation Model) analysis using the SmartPLS 3.2.9 program.

The results of this research show that individual characteristics and effective communication have a positive and significant effect on employee performance both directly and indirectly through job satisfaction. The direct influence of individual characteristic variables on job satisfaction is 0.368, the influence of individual characteristic variables on employee performance is 0.323, the influence of effective communication variables on job satisfaction is 0.390, the influence of effective communication variables on employee performance is 0.300, and the influence of job satisfaction on employee performance is 0.403. The indirect effect of individual characteristic variables on employee performance through job satisfaction is 0.148, and the effect of effective communication variables on employee performance through job satisfaction is 0.157.

Keywords

Individual Characteristics, Effective Communication, Job Satisfaction, Employee Performance

Implementation of A Spam Detector in Python for Corporate Companies

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Abstract

Many companies, while not categorizing spam as a form of attack, may still consider it a significant threat. When referring to spam, it represents an excessive volume of unwanted and unsolicited electronic mail sent to company email accounts [1]. Although it is often used for marketing purposes, in many cases, it is also employed by malicious actors for detrimental purposes against the company. For instance, spam can be used to propagate viruses or infiltrate corporate computers [1] [2]. Furthermore, spammers may send emails with the aim of directing users to phishing web pages, attempting to obtain confidential information from authorized personnel within the company. In general, spam is, at its simplest, an annoying form of mail, and in its worst cases, it serves as an enabler for spyware, viruses, intrusion, and phishing threats [3].

Keywords

spam, protection methods, informational resources, unwanted email, malicious

Forecasting of Electricity Demand For Loading of Power Transformers and Feeder At PT. RST using Artificial Neural Networks Backpropagation Method

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Abstract

PT. PLN (Persero) is a company in the electricity sector in Indonesia. From year to year, the growth in the need for electrical energy is very significant due to the increasing number of devices that use electrical energy sources. The increasing demand for electrical energy must also be supported by an increase in its supply, including, in this case, generation, transmission, and distribution.

The demand for electrical energy increases from year to year, so it is necessary to prepare supporting equipment, in this case the power transformer and feeder. PT. PLN (Persero) requires forecasting of increased electrical energy needs to be able to carry out short and long term evaluations and preparations. The research data comes from feeder loads from the main substation and is a time series, so this research uses a forecasting method to predict future electrical energy needs, namely the backpropagation artificial neural network method. Determining the appropriate ANN-BP architecture to get the best forecasting results with small error values. After forecasting electrical energy needs, then calculate the power transformer capability and current carrying capacity of the 20 kV feeder, so that it can be used as evaluation material in determining additional power transformers and existing feeder capacity.

Keywords

Electricity Demand, Transformer, Feeder, Forecasting, Artificial Neural Network, Backpropagation

Development of Knowledge Assessment Algorithm in e-Learning Environment

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Abstract

The development of technology also manifests itself in the educational environment. The traditional education model is already being replaced by the modern online education model. An electronic learning environment is created here. Online education allows people to learn remotely. This is basically a pretty advanced feature for anyone with internet access. It is possible to get access to any classes at any time, regardless of time and place. E-learning, which has many advantages, also helps in the development of individual education.

Electronic universities are one of the places where electronic educational environment is applied. E-universities can offer more advanced services to more students. At the same time, it is possible to choose an individual educational trajectory here. The selection of the individual trajectory of students is carried out on the basis of a certain method. And the management of electronic universities is carried out in electronic form.

The article is devoted to the study of the electronic university project as an electronic educational environment and its main space. Online education, e-learning environment, e-universities, services offered by them, methods and means of implementing individual education, algorithm of e-university management, calculations and examples in this direction are mentioned here.

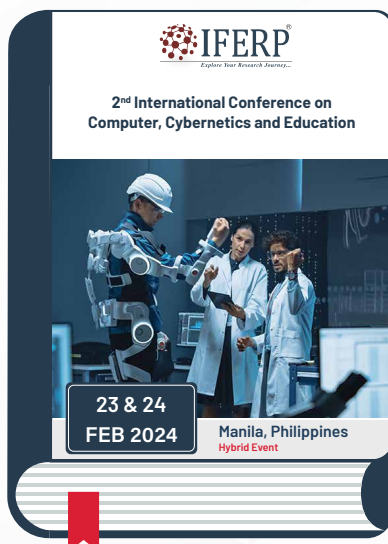
Keywords

Online education, E-learning, E-universities, Personalized education, Management, Algorithms

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