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"Pioneering Innovation, Shaping the Future"

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"Advancing Engineering and Management for a Better Tomorrow"

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Acknowledgement

ZEP Research is hosting the **ICASEM-25 International Conference on Applied Science, Engineering, and Management** on **April 2nd - 3rd, 2025**, in **Virtual Mode**. The main objective of this conference is to provide an exceptional opportunity to learn about the latest developments in applied science, engineering, and management, engage with peers on pressing challenges, and experience significant growth in your professional journey.

The conference will offer continuous networking opportunities and informational sessions, serving as a platform to absorb valuable insights from widely respected experts in the field. These sessions are designed to help professionals expand their knowledge, connect with fellow industry leaders, and exchange success stories. It's also a great opportunity to build relationships and enhance your reputation as a thought leader in your field.

I extend my heartfelt gratitude to all my colleagues, staff, professors, reviewers, and members of the organizing committee for their dedication and hard work in making this event a success. I also sincerely thank all our delegates for their commitment in attending this conference virtually, despite the challenges.

Priyanka Sahu

Mrs. Priyanka Sahu
Founder
ZEP Research

Preface

ZEP Research is hosting the **ICASEM Conference** on April 2nd - 3rd, 2025, in virtual mode. This conference provides a platform for intellectual exchange, interdisciplinary discussions, and the dissemination of pioneering research in the fields of Applied Science, Engineering, and Management. We look forward to a dynamic and engaging event, bringing together researchers, academics, and industry experts from around the globe.

It is our pleasure to have Pham Trung Kien, Marjohn V. Anislag, PhD CAR as our **Session Chair** and the **Keynote Speakers**- Eileen S. W. Koh, Prof.(Dr) Ipseeta Nanda, Diosdado Cuison Caronongan, Dr. Munish Sabharwal.

The **International Conference on Applied Science, Engineering, and Management (ICASEM)** is dedicated to fostering interdisciplinary collaboration and advancing innovations in applied science, engineering, and management. The conference provides a unique platform for researchers, practitioners, and industry leaders to engage in meaningful discussions on the latest developments and challenges in these fields. ICASEM focuses on the practical application of research in engineering, technology, and management, with the goal of addressing real-world problems through innovative solutions. By bringing together experts from various sectors, the conference encourages the exchange of knowledge, insights, and ideas that can contribute to shaping the future of applied science and management.

This event includes keynote presentations, technical sessions, and interactive workshops that explore emerging trends, best practices, and the ethical implications of new technologies and management strategies. ICASEM aims to create a collaborative environment where participants can deepen their understanding, share experiences, and explore potential partnerships that will drive future advancements.

We are honoured to host distinguished experts and enthusiasts from around the globe, each contributing unique perspectives and expertise.

We extend our heartfelt gratitude to all participants, sponsors, and organizers whose dedication has made this event possible. Let us embark on this journey of discovery, innovation, and collaboration.

Welcome to the International Conference on Applied Science, Engineering, and Management.

International Conference on Applied Science, Engineering & Management

Vietnam

02nd - 03rd April, 2025

Organizer's Message



Mrs. Priyanka Sahu
Founder
ZEP Research, India

Dear All,

It is with great pleasure that we present the proceedings of the International Conference on Applied Science, Engineering, and Management (ICASEM-25). This compilation of scholarly contributions represents the collective efforts of researchers, academicians, industry experts, and practitioners committed to advancing knowledge and fostering innovation.

The **ICASEM-2025** serves as a platform for intellectual exchange, interdisciplinary discussions, and the dissemination of pioneering research in Applied Science, Engineering, and Management. The papers in this volume showcase a range of cutting-edge studies, innovative methodologies, and practical applications aimed at addressing global challenges. Through this conference, we aim to foster collaboration and inspire solutions that drive progress across sectors, shaping the future of applied science, technology, and management practices.

We express our sincere gratitude to all authors, reviewers, keynote speakers, and participants for their invaluable contributions. Special appreciation is extended to the organizing committee, technical team, and advisory board for their unwavering dedication. We hope the insights and discoveries shared in this proceedings will inspire further research, collaborations, and advancements. We look forward to continuing this journey of academic excellence in future editions of **ICASEM-2025**.

Priyanka Sahu

Mrs. Priyanka Sahu
Founder,
ZEP Research, India

Keynote Speakers



Eileen S. W. Koh
Global Sustainability Director, Tyson Foods Inc, Arkansas, USA

I would like to express my sincere gratitude to the organizing committee of the International Conference on Applied Science, Engineering & Management (ICASEM), scheduled for April 2nd–3rd, 2025, in Thu Dau Mot City, Vietnam. This esteemedconference, organized by Zep Research Pvt Ltd, aims to bring together researchers, engineers, industry professionals, and academics to share cutting-edge developments in their respective fields.

I am honored to be invited as a Keynote Speaker to discuss "Pioneering Sustainability through Applied Science, Engineering, and Management." With over 12 years of industry experience in sustainable development, I look forward to contributing my insights on integrating sustainability principles across these disciplines. I believe that ICASEM will provide an excellent platform for exchanging knowledge and fostering collaborations that advance sustainable practices globally.

I eagerly anticipate engaging with fellow participants, sharing experiences, and learning from the diverse perspectives that this conference will undoubtedly offer. On behalf of the conference chair, I warmly welcome everyone to join us for what promises to be an enlightening and impactful gathering. I look forward to your active participation in ICASEM.

Best regards,

Eileen Koh S.W.
Keynote Speaker,
ICASEM-2025



Prof. (Dr) Ipseeta Nanda
Professor, School of Engineering
IILM University, Greater Noida
UP, India

I want to express my special thanks to the organizing committee of the "International Conference on Applied Sciences, Engineering, and Management (ICASEM-25)," which will be held on 2nd and 3rd April 2025 in Vietnam, organized by Zep Research. To explore and navigate the future by integrating applied sciences, engineering, and management on a global stage, I believe that ICASEM-25 will provide an excellent platform for international collaboration and discussion on the latest findings in these fields. I am delighted to be part of this conference, representing my perspective on multidisciplinary and engaging with esteemed international participants. I would like to welcome you all to this conference and look forward to your valuable contributions and participation in ICASEM-25.

Best regards,

Prof. (Dr) Ipseeta Nanda
Keynote Speaker,
ICASEM-2025



Diosdado Cuison Caronongan
Dean,Computer Studies,University of Luzon
Philippines

It is truly an honor to address you today at the International Conference on Applied Science, Engineering, and Management (ICASEM) 2025. As an IT and cybersecurity practitioner from the Philippines, I am particularly excited to be part of this gathering—a platform where we can share insights, exchange ideas, and forge partnerships to address the complex challenges shaping our digital future.

The theme, & quot; Advancing Engineering and Management for a Better Tomorrow,& quot; speaks directly to the transformative role of technology in building a sustainable, secure, and resilient future.

Today, as the world rapidly embraces digital transformation, we are also confronted with escalating cyber threats, data privacy concerns, and the widening digital divide. These challenges demand not just technical expertise but also strategic management and collaboration across disciplines and borders.

In the Philippines and across the globe, cybersecurity and digital resilience have become national priorities. As we strive to meet the UN Sustainable Development Goals (SDGs), safeguarding critical infrastructures, protecting sensitive data, and ensuring digital trust are fundamental to sustainable progress. The innovations presented at ICASEM have the potential to shape a safer and smarter future. This conference is more than just a platform for research presentations—it is an incubator of solutions. It offers us a chance to collaborate on cutting-edge technologies, explore emerging trends, and develop strategies that will define the next chapter of engineering, management, and technology. Together, through collaboration, knowledge-sharing, and bold innovation, we can contribute to a better tomorrow—one where technology serves as a force for sustainable progress and security.

Thank you, and I wish you all a productive and inspiring conference.

Dr. Diosdado Cuison Caronongan
Keynote Speaker,
ICASEM-2025

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International Conference on Applied Science, Engineering & Management

ABSTRACTS

Bridging Science and Innovation AI - Driven Approaches in Engineering and Management

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Abstract

The integration of Artificial Intelligence (AI) into engineering and management has revolutionized traditional practices, bridging the gap between science and innovation. AI driven approaches are transforming industries by enabling data-driven decision-making, optimizing processes, and fostering creativity in problem-solving. In engineering, AI-powered tools such as machine learning (ML) and deep learning (DL) are being used for predictive maintenance, design optimization, and automation, significantly enhancing efficiency, and reducing costs. In management, AI is reshaping strategic planning, resource allocation, and customer engagement through advanced analytics and intelligent systems. The synergy between AI and engineering has led to breakthroughs in areas like smart manufacturing, autonomous systems, and sustainable energy solutions, while in management, AI is driving innovation in areas such as supply chain optimization, risk management, and market forecasting. However, the adoption of AI also presents challenges, including ethical considerations, data privacy concerns, and the need for skilled professionals. This paper explores the transformative potential of AI in bridging science and innovation, highlighting its applications in engineering and management. It also discusses the challenges and opportunities associated with AI adoption, emphasizing the importance of interdisciplinary collaboration and continuous learning. By leveraging AI-driven approaches, organizations can unlock new possibilities, drive innovation, and achieve sustainable growth in an increasingly competitive and complex global landscape.

Keywords: *Artificial Intelligence, Machine Learning, Smart Manufacturing, Predictive Maintenance, Supply Chain Optimization.*

Transforming Medical Diagnostics with Deep Learning Cutting-Edge Image Analysis for Disease Detection

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Abstract

The integration of deep learning into medicinal diagnostics has introduced in a modern time of advancement, essentially progressing the capabilities of medicinal imaging and illness discovery. This paper dives into the transformative part of deep learning calculations in upgrading the exactness, productivity, and unwavering quality of symptomatic devices. By leveraging progressed models such as convolutional neural systems (CNNs), repetitive neural systems (RNNs), and generative ill-disposed systems (GANs), deep learning empowers the mechanized examination of complex medicinal pictures, counting X-rays, MRIs, CT scans check, and histopathology slides. These advances exceed expectations in recognizing unpretentious designs, recognizing early-stage maladies, and giving quantitative evaluations that outperform conventional strategies. Applications span over basic therapeutic areas such as radiology, oncology, cardiology, and pathology, where opportune and exact determination is vital for persistent results. Profound learning models not as it were make strides demonstrative exactness but too diminish the burden on healthcare experts by computerizing iteretive tasks and minimizing human blunder. Also, they encourage the improvement of prescient devices for malady movement, empowering personalized treatment plans and proactive healthcare mediations. In spite of these exceptional progressions, challenges such as information protection, demonstrate interpretability, and the require for expansive, assorted, and clarified datasets endure. This paper investigates later breakthroughs in profound learning for restorative imaging, counting the utilize of exchange learning, unified learning, and reasonable AI to address these restrictions. It moreover highlights the potential of deep learning to democratize healthcare by progressing symptomatic openness in underserved domian. By bridging the crevice between cutting-edge innovation and clinical hone, deep learning is reclassifying the benchmarks of medicinal diagnostics, clearing the way for a future where early discovery and accuracy pharmaceutical are the standards.

Keywords: *Deep Learning, Medical Imaging, Disease Detection, Diagnostic Accuracy, Automated Image Analysis.*

AI-Powered Non-Invasive Corneal Sensitivity Analyzer

Nakul Sankhayadhar[1], Sachitanand Singh[2], Lalthankima, Mahak[3], Iqra Jamal Khan[4]
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Abstract

The AI Portable Corneal Sensor is an innovative noncontact diagnostic device expected to become a revolution in corneal sensitivity assessment. It is a compact and portable device that takes the size of a cellphone and affords advanced infrared imaging technologies with micro-sensor arrays and artificial intelligence algorithms that deliver precise, objective quantitative evaluations of corneal health. Unlike the conventional practices of Cochet-Bonnet aesthesiometry and the Belmonte noncontact esthesiometer, which are invasive, subjective, and uncomfortable, this innovative product compensates for these challenges with care and pragmatic appreciation. The device works by applying controlled, noncontact stimuli (for example, air puffs of controlled pressure), capturing thermal responses with its high-resolution infrared imaging module. Responses are evaluated with real-time artificial intelligence algorithms and used to assess pivotal corneal parameters, including hydration, biomechanical properties and metabolic activity. They will either be digitally corrected or will allow the introduction of the perfect degree of synthetic refractive compensation to provide all necessary eye imaging and corneal tomography. It enhances diagnostic accuracy by abolishing the risk of cross contamination, minimizes patient discomfort, and improves on the diagnostic level, because it is portable, it can be operated in many clinical settings from remote and field environments. It also uses an intelligent calibration mechanism to achieve reliability and uniformity of performance.

Keywords: *Corneal sensitivity, Non contact diagnosis, Real time diagnostics*

Leveraging Artificial Intelligence for Precision Agriculture: A Digital Farming Approach to Enhance Crop Yield, Resource Efficiency, and Sustainability

Zulkar Nain Nabi[1], Anchal Kumari[2], Arman Siddiqui[3], Ipseeta Nanda[4]
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Abstract

The worldwide rural division is under expanding weight to meet the developing request for nourishment while tending to challenges such as climate disruption, asset shortage, and natural corruption. Accuracy agribusiness, empowered by fake insights (AI) and advanced innovations, offers a promising arrangement to optimize cultivating hones and upgrade supportability. This research investigates the integration of AI, Web of Things (IoT), and huge information analytics to create a computerized cultivating system pointed at progressing edit surrender, asset proficiency, and natural supportability. By sending IoT sensors for real-time checking of soil wellbeing, climate conditions, and Cultivation development, and leveraging AI calculations for prescient analytics, this thinks about points to optimize water system, fertilization, and bother control. The proposed system will be tried in pilot ranches to assess its viability in decreasing asset wastage, expanding edit efficiency, and minimizing natural affect. Preparatory discoveries propose that AI-driven accuracy horticulture can altogether improve decision-making, diminish input costs, and advance maintainable cultivating hones. Be that as it may, challenges such as high execution costs, need of specialized ability, and information protection concerns may ruin broad selection, especially in creating locales. This investigation contributes to the developing body of information on computerized agribusiness by giving noteworthy experiences for agriculturists, agribusinesses, and policymakers. It too, proposes techniques to overcome boundaries to selection, guaranteeing that the benefits of AI-driven cultivating are open to all partners. The results of this think about have the potential to change conventional cultivating hones, clearing the way for a more proficient, versatile, and economical rural framework.

Keywords: *Artificial Intelligence, Precision Agriculture, IoT, Sustainability, Crop Yield Optimization.*

Ethics on Cyber security in Protecting Company Data in Financial Industry

Maurice Amiel B. Villorente[1], Andrei Neil G. Mallari[2], Mari Julius John H. Lapuz[3], Richard N. Monreal[4]
[1,2,3,4]*Mapua University, Philippines*

Abstract

Cyber-attacks are mostly directed at financial institutions. The common cyber-attacks in financial sectors are phishing, malware, and insider threats. The primary goal of the researchers is to identify key ethical issues and incorporate ethical theories and obligations associated with cyber security to recommend best practices in protecting company data in financial sectors. This study used systematic review of literature where the researchers gathered insights and synthesized existing research related to ethical theories, issues, and obligations associated with cyber security in financial institutions. The researchers were also able to determine ethical issues associated with the cyber-attacks. The results of the study discussed how Utilitarianism and Social Contract Theory are incorporated in the development of cyber security policy. This study recommends 7 best practices in protecting company data in the financial industry, which include risk assessment, cyber security policy development, implementation of security measures, employee training and awareness, regular security audits and assessments, incident response plan, and continuous monitoring and improvements.

Keywords: *Cyber-attacks, Cyber security, Ethical Issues, Ethical Obligation, Social Contract Theory, Utilitarianism*

Understanding Customer Feedback: Sentiment Analysis of Maya Reviews to Enhance User Experience

Maurice Amiel B. Villorente[1], Richard N. Monreal[2]
[1,2]*Mapua University, Philippines*

Abstract

Maya holds a 4.6 out of 5 rating on the Google Play Store as of February 2025. Despite receiving high ratings and positive feedback on the Maya App, there are still some users who reported issues with customer service, account access, and products offered by Maya. This study aimed to identify which app version received high and low app ratings, to analyze user sentiments to identify emerging trends in feedback, to pinpoint key pain points and areas for improvement in the application, features, and services, and to determine whether the overall sentiment of user reviews based on Vader and CNN Model align with Maya's app rating. The researchers scraped data from google play store using google play_scrape library in python starting from January 1, 2023 to December 31, 2024 which consists of 48,689 unique and non-missing records. Of which, only 13,364 records were successfully processed for Tagalog-English translation, were cleaned up, and were used for Vader Sentiment Analysis and Convolutional Neural Network (CNN). The results of the study showed that most of the negative sentiments labeled by Vader are associated with Customer Support, Logging in, Disputes/ Unauthorized Transactions/ Scam/ Fraud/ Hack, Crypto Error, Credit Application, Account Upgrade/KYC, and Payment/ Remittance. There is a misalignment in the sentiments labeled by Vader and predicted by CNN model vs. the Maya App Rating of the users, specifically those who gave Negative Ratings but have positive sentiments. CNN model performed well in both train (accuracy: 0.94) and test Datasets (0.88). Though CNN model can still be further improved by parameter tuning.

Keywords: *sentiment analysis, maya, convolutional neural network (CNN), vader, negative, positive, data pre-processing, scrape*

IoT-based Soil Nutrients Detector with Fertilizer Recommender System

Marydel C. Estira[1], Richard N. Monreal[2]
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[2]AMA Computer University, Philippines

Abstract

The development of precision farming technologies addresses the increasing demand of sustainable precision agriculture. In agriculture, proper soil management is vital for successful farming practices and understanding the nutrient composition of soil helps farmers determine the right amount of fertilizers needed, maximizing yields for a specific crop. This paper presents a developed IoT-based soil nutrients detector and a system that recommends fertilizer for crops in Ilocos Region, Philippines. Specifically, the study aimed to develop a prototype device that detects soil parameters; developed mobile and web application that displays the detected soil parameters and recommends right amount of fertilizer for a specific crop; and to conduct cost benefit analysis. Applied Research was employed as research design of this study. The researchers utilized Android Studio for the development of the mobile application while c#, ASP.net and MS SQL for the web application. Based from the result, the prototype device measures seven (7) parameters of the soil condition such as Nitrogen (N), Phosphorus (P), Potassium (K), Electrical Conductivity (EC), moisture, temperature, and ph level as essential factors of soil fertility. The device is consisting of four module which includes Soil Sensor, Recommended Standard, Arduino Uno, and Bluetooth module. The soil data detected from the device is transmitted wirelessly through Bluetooth Low Energy to the mobile app and data will be send from mobile to the web application which will be stored, analyzed and for real-time data visualization by the farmers and Department of Agriculture Regional Office 1. The mobile app displays the soil data parameters and recommended fertilizer for a selected crop while the web application manages the data collected by the device for data visualization. In recommending fertilizer, it involves key parameters to consider to help balance the soil nutrients of the crop such as soil nutrients deficiencies, crop nutrient requirements and fertilizer formulation. With the proposed system, it offers long term benefit such as increase yields and cost saving. The technology can improve farm productivity and profitability in the long run with estimated break-even point within 2-3 years. Overall, the developed IoT-based solution enable the farmers to determine soil health conditions, helps in optimizing fertilizer usage to enhance crop yields and provides cost-effective approach to precision agriculture.

Keywords: *Cloud Computing, Internet of Things, Precision Agriculture, Soil Nutrients Detector*

The Digital Twin Technology on Human Behavior Activities

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Abstract

Digital Twin Technology (DTT) has developed rapidly in various fields, including in understanding and analyzing human behavior. This study explores how DTT can be used to model human activities in real time and provide new insights into individual and group behavior patterns. With a qualitative approach, this study adopts Activity Theory and Cyber-Physical Systems theories to understand how interactions between the physical and digital worlds can accurately represent human behavior. The results show that DTT can capture, represent, and predict human activities through digital simulations based on sensor data and artificial intelligence. These findings open up opportunities for various applications, such as in the fields of health, smart city management, and improving user experience in digital systems. The discussion highlights data accuracy, privacy challenges, and limitations in interpreting complex behavior. The main contribution of this study is to provide a new perspective on how DTT can be applied to understand human behavior more comprehensively. Thus, this study offers theoretical and practical insights that can be further developed in future research.

Keywords: *Digital Twin Technology, Human Behavior, Activity Theory, Digital Simulation, Cyber Physical Systems.*

Drones in Construction: Enhancing Site Monitoring and Surveying

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Abstract

The construction industry has witnessed rapid technological advancements, significantly enhancing efficiency, safety, and accuracy in project execution. Among these innovations, drones, or Unmanned Aerial Vehicles (UAVs), have emerged as a transformative tool in site monitoring and surveying. This research examines the role of drones in modern construction, exploring their applications, benefits, challenges, and future potential. Drones are revolutionizing construction processes by providing real-time data, high-resolution imaging, and improved site management. Traditional site surveying and mapping, which required extensive manual effort and costly equipment, have been significantly enhanced through drone technology. Equipped with high-resolution cameras and LiDAR sensors, drones generate accurate topographical maps and 3D models, allowing engineers and project managers to conduct precise site analyses. This capability facilitates comprehensive pre-construction planning, ensuring better project execution. Beyond surveying, drones enable efficient progress tracking through aerial imagery, allowing project managers to monitor developments in real time. This helps compare actual progress with schedules, identify delays early, and optimize resource allocation. Additionally, drones contribute to safety and risk management by minimizing human exposure to hazardous environments. They assess structural integrity, monitor high-risk areas, and detect potential hazards, ensuring compliance with safety regulations while reducing workplace accidents. Another key application of drones in construction is material and equipment tracking. By monitoring the movement and placement of materials, drones help optimize resource utilization and reduce wastage. Furthermore, drones improve quality control and inspection by enabling close-up assessments of structures, detecting defects, and utilizing thermal imaging to identify insulation issues or structural weaknesses. These capabilities reduce the need for manual inspections, scaffolding, and climbing, enhancing both efficiency and accuracy. Despite these advantages, the widespread adoption of drones in construction faces challenges. Regulatory compliance remains a significant concern, as airspace restrictions and permit requirements vary by location. High initial investment costs for drones, software, and skilled operators pose financial barriers, especially for small-scale firms. Additionally, data processing complexity requires advanced software and expertise. Environmental factors such as adverse weather conditions can also impact drone performance. Looking ahead, advancements in artificial intelligence (AI), automation, and data analytics will further enhance drone capabilities. AI-powered drones will improve data interpretation, automate flight operations, and integrate seamlessly with

Building Information Modeling (BIM), transforming construction workflows. As regulations become more standardized and technology becomes more affordable, the adoption of drones in construction is expected to expand. In conclusion, drones have become an indispensable tool in modern construction, significantly improving site monitoring, surveying, safety, and efficiency. While challenges exist, the benefits far outweigh the drawbacks, making drones a crucial asset for future infrastructure development.

Keywords: *Construction technology, drones, site monitoring, surveying, UAVs, automation, safety, efficiency.*

Sustainable Management of Ecotourism, Case Study in Dampier Strait of Marine Protected Area, Raja Ampat, Southeast of Papua Province, Indonesia

Yuanike Kaber[1], Fredinan Yullianda[2], Dietriech G. Bengen[3]
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Abstract

The sustainable analysis of marine ecotourism in Dampier Strait Marine Protected Area of Raja Ampat yields from analysis of tourist perception based on structured and depth interviews so as to be known for various ecological interdimensional relationships (10 attributes), economic dimension (4 attributes), cultural social dimension (12 attributes), and technology (4 attributes). Set up attributes are justification of some perceptions that represent the performance of tourist ecotourism, management of the attraction of tourist destinations, optimize the management of conservation area and sustainable management areas of marine ecotourism in Dampier Strait Marine Protected Areas. There are consists of ecology, economy, social, and technology dimensions. Contributions from each dimension to the performance of marine ecotourist, management of the attraction of tourist destinations, optimize the management of conservation area and sustainable management areas of marine ecotourism could be analyzed using multidimensional scaling (multidimensional scaling/MDS) on the assessed by respondents. Sustainability status analysis can be known using software RAMEco (Rapid Appraisal for Management of Marine Ecotourism). Based on the results of multidimensional analysis, the ordinance of attribute contributions in the ecological, economic, socio-cultural, and technological dimensions has a sustainability index value of 59.51, indicating a potential for sustainability. According to tourists' perceptions, the sustainability ordinance is largely determined by attributes with similar value ranges to enhance the sustainable management of the Dampier Strait MPA in Raja Ampat. The multidimensional sustainability analysis showed that the ordinance of attribute contributions in the ecological, economic, socio-cultural, and technological dimensions has a potential sustainability status (sustainability index of 59.51).The most important attributes that contribute significantly to the sustainability status of management include regulating accessibility through better transportation system management, ensuring ease of access, and utilizing appropriate transportation modes; improved management, maintenance, and conservation of the Dampier Strait MPA; and better promotion of the Dampier Strait MPA, all of which will influence the sustainability status.

Keywords: *Sustainable management, ecotourism, Marine Protected Area, Raja Ampat*

Advanced Tool Condition Monitoring for High-Performance Machining" A Review

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Abstract

In the context of the industry 4.0 revolution, there has been increasing interest in the development of autonomous, self-adjusting machining systems, particularly in high-value manufacturing industries. This trend is primarily driven by the need to improve productivity, ensure consistent part quality, and reduce operational costs. Tool Condition Monitoring (TCM) plays a pivotal role in this shift by continuously monitoring the health of cutting tools. This allows for the early detection of issues such as wear, cracking, chipping, and breakage, leading to enhanced operational efficiency and economic feasibility. This review investigates the recent advancements in TCM system components, focusing on key areas such as sensors, data acquisition, signal conditioning, processing techniques, and monitoring models. A significant portion of the discussion is dedicated to the challenges and advantages associated with the development of wireless, tool-integrated sensor nodes, which enable seamless integration with Industrial Internet of Things (IIoT) systems. The paper also emphasizes the role of dimensionality reduction techniques in improving the performance of TCM systems and critically evaluates current methods while identifying opportunities for further refinement. Additionally, the review explores recent developments aimed at boosting the generalization and overall performance of TCM systems. It also offers recommendations for future research, focusing on enhancing system accuracy, reliability, and functionality to ensure that TCM systems can meet the evolving demands of modern manufacturing.

Keywords: *Autonomous machining systems, Tool Condition Monitoring (TCM), Productivity improvement, Cutting tool health, Wear detection*

Industry 5.0's LLM-driven Technologies: A Prospect for Sustainable Production

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Abstract

In the rapidly evolving landscape of manufacturing, the integration of Large Language Models has emerged as a promising approach to enhance sustainability and operational efficiency. As Industry 5.0 shifts its focus from automation and smart technologies to the cobots, augmented intelligence etc., there is tremendous improvement in the experience of manufacturing processes. One of the key areas where LLM-driven technologies can unlock the potential of Industry 5.0 is in the realm of fault detection and prediction. By leveraging the power of AI/ML, manufacturers can identify and address faults in real-time, leading to reduced waste, improved resource utilization, decisionmaking, and process automation. This paper explores the role of LLM in improving the efficiency of global industrial processes and the achievement of sustainable and customizable industrial practices. A discussion about the challenges of application of LLM in supply chain optimization, process automation, waste reduction to the support in energy management is provided. A case study of LLM aid in sustainable manufacturing across the retail and steel industries is also presented.

Keywords: *GenAI, LLM, Technology, AI, Industry, Agent, Energy.*

Ameliorating University Students' Performance (Citizenship Behavior) Model Based on Big-five Personality and Psychological Capital (PsyCap), Mediated by Students' Attitude Toward Dunning-Kruger Effect

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Abstract

After more than three years, the negative impact of the Pandemic is still felt, especially by students who have to adapt themselves to a new era in the teaching-learning process which is closely and fully conducted digitally or online learning. Of course, those impacts were also felt psychologically by university students. Therefore, this exploratory research was aimed at finding information on whether students' performance (CB) is directly or indirectly affected by their personality and PsyCap which is mediated by their attitude toward the Dunning-Kruger Effect (D-KE). A survey method was used by selecting randomly 305 university students throughout the country, of Indonesia. All instruments that measured students' CB, personality, PsyCap, and their attitude toward D-KE were validated scientifically. Data were analyzed by path analysis. The research results revealed that all instruments used were applicable for the next research based on these findings which indicated a qualified instrument for measuring students' CB has a reliability was 0.667. Moreover, 19 items that measured students' big-5 personalities have a reliability was 0.846. Around 33 items used to measure students' PsyCap found its reliability was 0.846, and then the students' attitude instrument has a reliability of 0.851. In addition to those findings, it was found also that students' personality and PsyCap directly and significantly affected students' CB, however, both of those exogenous factors were found to negatively affect students' attitudes toward D-KE. The latter was expected logically since most students might perceive that they do not like their lecturers/professors infected by that cognitive bias phenomenon. Moreover, this attitude did not significantly affect students' CB. Considering those findings, it could be concluded that students' performance might be able to be maintained by developing campus policies that focus on students' personalities and strengthen their PsyCap, especially during the post-covid pandemic and freedom for learning programs, including some efforts to avoid or at least minimize the influence of Dunning-Kruger Effect.

Keywords: *Citizenship Behavior, Psychological Capital, Attitude toward Dunning-Kruger Effect, Reliability, and Path Analysis.*

Konsep Pendidikan Jasmani Perspektif Al-Quran

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Abstract

Jasmani berarti al-Jism artinya jasad dan badan yang berasal dari kata at-tajassum, yaitu berkumpulnya sesuatu. Kata al-Jism dapat dimaknai bahwa kata jasmani dalam Bahasa Arab adalah badaniyyun artinya badan, jasadan artinya jasad, aljism artinya tubuh. Penulisan makalah ini menggunakan metodologi penelitian kepustakaan (library research) dengan maksud mempertajam tinjauan teoritis dan memperoleh informasi yang sama dengan peneliti yang lain. Hasil dari penelitian ini adalah bahwa di dalam Al-Quran, term badaniyyun terdapat dalam Al-Quran surah Yunus: 92., Jasadan terulang sebanyak 4 kali yaitu Qs. Al-A'raf : 148, Thaha : 88, Al-Anbiyaa': 8, Saad : 34. Term Hayyia dalam Qs. Ali Imran : 49, Al-Maidah : 110, Al-Kahfi : 10 dan Al-Kahfi : 16, dan term Al-jism dalam Qs.Al-Baqarah : 247 dan surah Al-Munafiqun: 4. Tujuan pendidikan jasmani perspektif Al-Quran adalah Beribadah dengan maksimal (Al-Baqarah ayat 185), Menjadi pekerja yang kuat dan handal (Qs. Al-Qashash ayat 28.), Pertahanan Umat Islam (Qs. al-Anfal ayat 60), Pemimpin Negara (Al-Baqarah ayat 247). Metode Pendidikan Jasmani perspektif Al-Quran adalah dengan menjaga kebersihan pakaian (Al-Mudatsir ayat 4), menjaga kebersihan badan (al- Maidah ayat 6), Menjaga pola makan, tidak berlebihan, cukup dengan yang halal dan baik; Mulai dengan ASI selama 2 tahun (Al-Baqarah ayat 233), tidak berlebihan (Qs. Al-A'raf 31), Cukup dengan yang halal lagi baik (Qs. Al-Baqarah; 168), Menjauhi khamar (Qs. Al-Maidah ayat 90), Menjauhi perbuatan yang dapat menghancurkan kesehatan jasmani seperti zina (Qs. Al-Isra; 32) dan penyimpangan seksual (Qs. Al-A'raf ayat 80-81), menjaga pola istirahat di malam hari.(Qs. an-Naba' ayat 9-10).

Keywords: *Pendidikan. Jasmani. Al-Qur'an*

Learners And Educators' Lived Experiences in An Individualized Online Instruction In Physics

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Abstract

Individualizing learning is an attempt to personalize instruction by considering the individual needs, capabilities, and preferences of the learners as well as their unique learning pace. This study explored the lived experiences of both the students and educator in an individualized online Physics instructional modules. The intervention, which utilized the principles of mastery learning by the famous educational psychologist, Benjamin Bloom, was implemented for a semester to students enrolled in a general Physics course for Engineering Technologists during the peak of the pandemic in 2020. The students' lived experiences were gathered using weekly reflective journals and semi-structured interviews with the top and least performing students. The responses were then analyzed using a thematic coding approach aided by a qualitative data analysis application, Quirkos. Results showed that the individualized online instructional modules displayed evidences of the positive effect to the students' cognitive skills, learner motivation, learner control and interactivity. In terms of content structure, the modules are organized, accessible and easy to use. There is also the presence of other elements of online course design such as assessment, feedback and study skills for online learning, However, there is a need to improve the modules in terms of the provision for instant clarification and online evaluation, social relation and social presence. Overall, the individualized modules have a significant potential in providing positive learning experiences to students taking a general Physics course.

Keywords: Lived experiences, Individualized instruction, Online learning, Physics education, Learner-centered approach, Virtual classrooms

21st Century Skills in Tailoring Courses to Support Independent Learning in The Department of Fashion Education

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Abstract

This study aims to analyze 21st century skills in tailoring courses to support independent learning in the Department of Fashion Education FT-UNM. This type of research is quantitative research using data collection methods in the form of interviews with lecturers and students, and observation of the RPS used. The results showed the application of 21st century skills which include Critical Thinking, Creativity, Collaboration & Communication in learning tailoring courses. Research shows that 21st century skills are related to one another in tailoring course learning, so that each of the 21st century skills known as Skills 4C cannot be achieved if separated. This research shows the need to apply 4c skills in learning, so that it can be material for learning other practical courses to compile a plan for the application of 4c skills in learning.

Keywords: *Tailoring; Freedom to Learn; 21st Century Skills.*

Secondary School Mathematics Teachers' Utilization of Derived Learnings from the Webinars Attended During the Pandemic: Bases for Designing an Online Learning and Development

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Abstract

COVID-19 has affected how teachers participate in various learning and development programs. This phenomenon caused all educational institutions to organize webinars to equip the teachers with the necessary knowledge and skills needed in teaching during the pandemic. This study evaluated the webinars initiated by the Division of Nueva Vizcaya and participated in by 173 secondary school mathematics teachers (SSMT) of the Schools Division Office of Nueva Vizcaya. These webinars with foci based on the domains of the Philippine Professional Standards for Teachers (PPST) were participated in for the school year 2020-2021. Kirkpatrick's training evaluation model focused on the first and third levels namely reaction and behavior was used. The mixed-methods approach, particularly explanatory sequential mixed method design was utilized with survey questionnaire, interviews and document review as data gathering tools. The study revealed that SSMTs considered the activities in the webinars as useful and relevant based on evidences obtained related to the Kirkpatrick's Training Evaluation Model with reaction and behavior. Derived learnings of the SSMT were applied for the purpose of improving the learners' performances; however, knowledge and skills gained in ICT-related strategies and online teaching were not utilized. The Project ARTIST (Assessment and Reporting Tools and Innovative Strategies in Teaching Diverse Learners) focusing on the domains on diversity of learners and assessment and reporting may be used by DepEd Nueva Vizcaya and actualization of these derived learnings should be shared and monitored for the purpose of the "return of investment".

Keywords: *Behavior; derived learnings; Kirkpatrick's evaluation model; and PPST domain*

Development of Computer-Aided Instruction for English Language Teaching: An Interactive Learning Activities

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Abstract

English educators worldwide are motivated to use technology to help learners improve their English skills to meet the demands of the new world economic order. However, English language teaching underwent an abrupt change because of the unexpected circumstances caused by COVID-19. In 2021, the Philippines slid to 18th place in Global English Proficiency rankings compared to the past years but remained in the top 15. Some factors are the delays in the delivery of books and outdated or lack of learning materials, especially in remote areas. The good thing about the pandemic is that teachers are now equipped with computers for teaching. It gives them the time to enhance their skills in creating innovative instructional material through a series of seminars and workshops that they can use in teaching-learning. However, it will not solve the problem that is why this study explored the development of Computer Aided-Instruction (CAI) for Interactive Evaluative Learning Activities in English Language Teaching (EFL) implemented in the Philippines. This developmental research study was anchored on Instructional Design Theory, the ADDIE Model, with its five (5) phases; Analysis, Design, Development, Implementation, and Evaluation. The developed CAIs were also evaluated by License English Educators in selected Secondary Public Schools in the Philippines regarding the design and development process and the three domains of learning skills development; Cognitive, Affective, and Psychomotor. The researchers used statistical tools to tabulate and process the data. It involved calculating the frequency count, percentage, and weighted mean of the experts' responses from the developed Interactive Activities in terms of the Design and Development and Three Domains of Learning. In the future, the researchers want to test these CAIs in other parts of the Philippines and assess the different outcomes of the acceptance. With this strategy, the researchers can write policy research promoting the development and use of CAIs in the Philippine Education System.

Keywords: *Interactive activities, Computer-aided instruction, ADDIE, Evaluative learning*

The Use of Technology in English Speaking Learning: The Effectiveness of FlipaClip

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Abstract

The digitalisation era is demanding people to get used to utilize the technology. It has been being part of human daily lives, it is time to rethink the concept of integrating technology into the curriculum to support the learning process. The important role that technology plays in education gives teachers the opportunity to design meaningful learning experiences that embed technology (Eady & Lockyer, 2003). This role is also applied in language learning class, especially English as foreign language learning. The technology supports the English class to be more attractive and more creative. It motivates the learners to learn English, while it is easier for them to understand the materials using technology as the media. The collaboration of technology and media appears the positive effects on teaching and learning (Reeves, 1998). Educators and researchers point to the potential of technology to increase motivation and engagement of learners, cater for different learning styles and improve learning outcomes (Eady & Lockyer, 2003). One of modern digital media in language learning is FlipaClip, a media where students will create an animation and do the dubbing to the animation characters. This research aims to see the effectiveness of using Flipaclip toward students' speaking skill in English speaking class. The research was conducted in English Education Department of Universitas Muhammadiyah Muara Bungo. It was found that FlipaClip gave significant effect towards the students' speaking skill.

Keywords: English speaking learning, Technology in language education, FlipaClip in education, Speaking skills development, Educational animation tools, Language learning apps

Extent of Contextualization of the Teacher-made Learning Materials in General Mathematics and Alignment to the Learning Competencies

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Abstract

In the Philippines, the Department of Education (DepEd) emphasized the production and utilization of contextualized learning materials (CLMs) to make learning meaningful and relevant to students. This study aimed to determine the extent to which teacher-made learning materials in General Mathematics were contextualized and aligned with the prescribed learning competencies. The researcher utilized the descriptive-evaluative design using an adapted evaluation tool as the main instrument in the data gathering. Six Senior High School General Mathematics teachers from private schools in Alicia, Isabela, Philippines participated in the study. They were purposively selected based on the criteria that they have created their learning materials in "functions and their graphs" in the first semester of 2020-2021. The researcher gathered data from scanned teacher-made learning materials and evaluator ratings on contextualization and alignment. The results revealed that contextualization was evident in the materials, but only to a satisfactory or poor extent. Moreover, the contents of the materials demonstrated a high percentage of alignment with the prescribed learning competencies. The teachers revealed that lack of time, limited knowledge of contextualization, difficulty in matching competencies in a real-life context, and students' differences hindered their capability to contextualize. Contextualized learning materials featuring the real-life contexts of Alicia, Isabela, on the least contextualized lessons, were prepared as an output. Teachers could use the researcher-made CLMs as supplementary learning materials. These learning materials were further recommended for validation and pilot testing to determine their effectiveness.

Keywords: *contextualization, learning materials, problems encountered by teachers, real-world situations, alignment*

Stress, Coping Mechanism and Motivation of Student - Mothers of Capsu Burias

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Abstract

This paper focused on the qualitative methods to describe the experience of student - mothers of Capiz State University Burias in the era of full implementation of face to face classes. Purposive sampling was employed in this study to gather eight student-parents. The participants were interviewed using a semi-structured questionnaire. To delve deeper with their experiences, Colaizzi'z method was used to collect, record, and analyze data. The researcher formulated three themes from the results as follows: 1) The Stress encountered by the student- mothers, 2) The students' coping mechanism to the challenges they encountered, 3). Students' motivation in pursuing their studies. The student-mothers shared their experience during this of full implementation of face to face classes and narrated how these made an impact in their lives as student-mother. This scenario greatly affected their mental and emotional health and even impacted their studies.

Keywords: *Student-mothers, Stress management, Coping mechanisms, Academic stress, Motivation, Work-life balance*

Streaming to Success: Netflix As a Tool to Enhance Vocabulary Skills

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Abstract

Multimedia learning has been a growing interest in education research, with many studies investigating its potential in enhancing learning outcomes. One popular technology, Netflix, has been primarily used for entertainment but it also has the potential as an educational tool. This study investigated the effectiveness of using Netflix as a tool to enhance vocabulary skills among students and improve classroom instruction. Employing the descriptive quantitative design, the study used vocabulary pre and post tests to determine the participants' level of vocabulary skills.

The findings revealed that the students' performance level in the vocabulary pre-test was satisfactory. However, this improved in the vocabulary post-test watching a Netflix series. The study also showed that there is a significant difference between the pre and post-test scores of the students, suggesting that Netflix is an effective tool to enhance students' vocabulary skills.

The results of this study highlight how successful Netflix is as a teaching tool and offer insightful information on how to create and use multimedia resources for language learning. The findings of this study can guide the creation of instructional strategies that meet the requirements of a varied group of students and encourage the adoption of cutting-edge techniques to improve language learning outcomes.

Keywords: *Netflix, Multimedia Learning, Vocabulary*

A Transformative Reflective Journey of a Robotics Curriculum Development in Basic Education: The Case of DLSZ

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Abstract

Innovative transformation of modern technical environment and update of technical activities of society have to be reflected in the content of school education. Teaching should focus on forming the knowledge, abilities, and competencies enabling the younger generation to be successfully integrated into the modern socio-technical systems in order to efficiently maintain and develop the scientific and technological potential of the society. This study aims to describe the current robotics curriculum of the De La Salle Santiago Zobel (DLSZ) in terms of: Perspectives on Creativity and Innovation (PCI), Effectiveness of Robotics Intervention Strategy (ERIS), and Stakeholders Evaluation of the Robotics Program (SERP). A descriptive collaborative action research and developmental research design was employed to examine the existing DLSZ Robotics program. Quantitative data were extracted from curriculum and mastery report: vertical and horizontal articulation, reporting student performance data, rubric for learners' outputs, Robotics practice and main tasks, 6-item likert scale on perception on the proposed Robotics curriculum questionnaire, Term 2 and Term 3 AY 2020-2021 performance tasks, and 21-item likert scale evaluation on the proposed Robotics curriculum questionnaire. Qualitative data were obtained from reflection journals: easy and difficult Robotics activities and how else can the teachers help the students do the assigned tasks, classroom observation, weekly learning guide, survey questionnaire, focus group discussion, and students' portfolio. SWOT analysis, environmental scanning, and interview protocols were developed and validated. The following stakeholders were involved in this study: students (n1=1,930), teachers/coaches (n2=10), parents (n3=30), and subject-area coordinators (n4=20). Results of this study were considered in developing new robotics curriculum for DLSZ. The curriculum design established an academically worthwhile content, competencies, modalities, and assessments with quality and effective instructional materials.

Keywords: *curriculum development, innovative and transformative technological environment, scientific society, Robotics.*

Investigating international students' learning strategies and challenges under an English as a medium of instruction (EMI) setting: A case study at National Taipei University

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Abstract

The effectiveness of English-Medium Instruction (EMI) courses on local students' academic achievement, as well as their learning experiences, has been examined for decades in Taiwan. However, research on the difficulties and learning strategies of international students in a Taiwanese EMI context is few. To overcome this deficiency, the researcher applied observations, questionnaires, and interviews to collect information from 17 non-English-speaking international students at one public university in Taiwan. The research discovered that differences in English proficiency levels and strategy adoption among Asian and European international students had a significant role in the learning of EMI courses. Asian students tended to have lower English proficiency levels and employed social, affective, and cognitive strategies; European students tended to have higher English proficiency levels and employed metacognitive and cognitive strategies. European peers' cognitive strategies, nevertheless, differed tremendously from those of the Asian counterparts. Peer interaction, academic and non-academic stressors, and expression in English posed a challenge to international students' engagement in EMI courses. This research suggests that teachers ensure inclusiveness in curricula and that school administration provide practical support for international students. Students' learning experiences of EMI courses may be improved considering international students' achievement and learning styles.

Keywords: *English as a Medium of Instruction (EMI), learning challenges, learning strategies, mixed-methods research*

A Review of Heutagogy Practices in Higher Education

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Abstract

Throughout the years, education has continuously progressed from one paradigm to another to cater the required competencies of the different economic and industrial eras. The introduction of technology and its amalgamation in education gave way to a novel shift from traditional learning, which leads to the increase of teacher student interaction, self-directed learning, and critical thinking skills, that are aligned with the principles of heutagogy. Heutagogy promotes learners' autonomy, capacities, and capabilities without relying much on face-to-face interactions. It is one of the emerging approaches in education that presents promising outcomes. This study aimed to conduct a literature evaluation of the definition, frameworks, practices, and implementation of heutagogy in various educational settings. The study employed a literature review of 100 research articles that are nationally and internationally conducted, from 2013 to present, as its methodology. The literature review indicated that the approaches of heutagogy have acquired positive recognitions from both the academe and the students, in terms of its usefulness and effectiveness in learning. It showed, however, that the potency and limitations of its contextualized applications have yet been firmly established. This initial review will lead into a deeper exploration of heutagogical practices across colleges and universities in the Philippines.

Keywords: *21st century learning, Heutagogical Approach, Heutagogy, Higher Education, Self-determined learning*

The Effects of ChatGPT on Education and Solutions: From Perspective of Development of The Times

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Abstract

Since the release of a chatbot called ChatGPT at the end of last year, it has has emerged as a promising artificial intelligence (AI) technology that is poised to gain wider visibility in various spheres of our daily existence. This article delves into the impact of ChatGPT on education and offers potential solutions grounded in the technology S-curve and life cycle theories. Trends of engineering system evolution (TESE) was used and the key method to analyse the evolution of AI Chatbots. Through a thorough review of the four waves of artificial intelligence (AI) development, the current stage of ChatGPT's growth is identified as being in the growth stage, as determined by the technology S-curve. Furthermore, this article analyses the possible advantages that ChatGPT can offer, such as providing information, generating content, giving feedback, and offering study tips. On the other hand, it is also worth noting that there are potential challenges that may arise, such as the dissemination of misleading information, ethical considerations, reduced interactivity, and the impact on critical thinking. Considering these factors, several strategies are proposed in this article by using the technology life cycle theory as a framework, which can guide the direction of AI Chatbots research in education. In conclusion, the findings of this article can contribute to the continued evolution of ChatGPT, meeting the ever-evolving needs of education and society.

Keywords: *ChatGPT, Life cycle theories, TESE, Technology S-curve*

Mechanisms for Improving Academic Performance of First Year Accounting Students: A Phenomenological Perspective

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Abstract

This research paper has explored mechanisms for improving academic performance of first year accounting students. Universities around the world struggle with the high failure rate of first-year accounting students, and South African universities are not different. According to published research, the throughput of accounting graduates is negatively impacted by high first-year failure rates at most universities. As such, these universities have implemented interventions to reduce academic underperformance and failure rates. The study was inspired by the social constructivism theory, and it was grounded in interpretive research paradigm deep-rooted in a qualitative research approach. Purposive sampling was used to select four first year students and 2 first year accounting lecturers at university of technology in South Africa. A thematic analysis was done to analyse the qualitative data generated through group interview. Themes that emerged from group interviews were extra classes and intervention programmes. This study further suggests work-integrated learning for students to put into practice the theory they have learned. Moreover, this will enhance the development of skills required in the labour market upon student completion of their degrees.

Keywords: *Academic performance, academic underperformance, failure rate, intervention mechanisms, work-integrated learning*

A New Proposition of Symbolic Reaction Theory in Job Choice Factors of Senior High School Students under Science, Technology Engineering and Mathematics Education

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Abstract

This quantitative descriptive research explored the perspectives of 438 STEM (science, technology, engineering, and mathematics) senior high school students in a 207 public and private secondary school in the province of Iloilo, Philippines in terms of their job choices to analyze and develop a new proposition on Howard Becker's Social Interaction Theory. The need for developing promising theoretical concepts of transition from the traditionally-developed paradigm model of career intervention to the new normal environment was substantiated by the researcher anchored on Becker's Social Interaction Theory used in this study. The theory provides a basis for understanding individual's behavior and viewpoints, where the researcher provides descriptions of processes of human interaction. However, results of the study challenged the theory of Howard Becker (2008) on his proposition: "…People are constructors of their own actions and meanings. Individuals construct their own social realities and perspectives of their world using responses from the environment and different sociocultural relationships with which they interact. Symbolic interactionism or Social Interaction Theory provides opportunities for analyzing ways in which different socializing experiences affect an individual's life cycle…" The argument focused on analyzing ways on which different socializing experiences affect an individual's life cycle as pointed out by Becker in his proposition. This new proposition: "Stereotyping on areas such as social status, gender differences, parent role and sibling ranks is a stimulus of normative social influence. The adopted pattern of thoughts based on past experiences directs people to behave consistently with group norms. Based on the perspectives of the students, this study pointed out that the Howard Beker's Social Interaction Theory on individual's construction of realities and perspectives is influenced by sociological stereotyping and normative social influence. The combination of the two ideas is being attributed as ways in which different socializing experiences affect an individual's life cycle which include his preferences."

Keywords: *Howard Becker's Interaction Theory, students' job choice factors, STEM education*

The Effectiveness of Collaborative and Problem-Based Learning in Accounting Pedagogy: A Case Study of One Higher Education Institution in South Africa

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Abstract

The nature of Accounting curriculum is practical and it is a module that is achievable through working with others. In an Accounting classroom collaborative learning occurs through the engagement of students in their learning and in class activity discussion. In addition, the content of Accounting is mostly problem-based which allows students an opportunity to work together to obtain critical thinking skills. Thus, collaborative and problem-based learning is therefore believed to be more effective in the pedagogy of Accounting. It is for the above-mentioned reasons that this study aims to report on the effectiveness of collaborative and problem-based learning in Accounting pedagogy. This qualitative study was underpinned by a collaborative learning theoretical framework, which provides an understanding of cooperative learning procedures. A case study research design was adopted to provide in-depth information on the phenomenon. Three Accounting lessons of third-year students were observed and four students were purposively sampled for semi-structured interviews. Data collected were analysed using thematic analysis. Findings reveal that collaborative learning assists Accounting students to share Ideas on their learning through working in groups, allows Accounting students to provide peer feedback, collaborative learning embraces student-centered approach learning, and improves the quality of pedagogy and learning through discussions. Lastly, findings reveal that problem-based learning in Accounting creates a space of innovative learning and produces critical thinkers. The commendation is to enforce more collaborative and problem-based learning to achieve transformation in learning.

Keywords: *Accounting, collaborative and problem-based learning, higher education, pedagogy.*

The Importance of Educating to Think: Teaching Methodologies and Aids from Cooperative Learning and Problem-Based Learning

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Abstract

This work focuses on the theme of educating to think. The education to thought is a highly topical methodology, in terms of critical thinking and doubt, which initiate processes of reflection and move away from rigid and dogmatic visions. The central point concerns the opportunity to promote a rational activity, not understood as a fideistic attitude towards the great possibilities of reason, but as a desire to direct the educational process on a well-founded scientific basis. There are many formulations in support of educating to think; they have inspired concrete teaching methodologies focused on the development of critical thinking, preferring doubt, research, cooperative activity, problem solving. Among them, a prominent place is occupied by Cooperative Learning and Problem-Based Learning. They are characterized by analogous aspects and by different factors, but are oriented towards a common intentionality relating to the development of critical and creative thinking, through the strategy of dialogue. The paper highlights the reasons for the motivated interest in the indicated topic, underlining the need, connected to the current historical-social context, for a review of learning methods. Cooperative Learning and Problem-Based Learning are then examined, highlighting the fundamental characteristics and educational objectives. The conditions for creating a suitable climate for effective learning based on skills and competences to be improved are underlined, describing the teaching methods of interest. These are innovative teaching methods capable of involving pupils, making them interact, making them aware of their knowledge and acquisitions, trying to develop critical and creative thinking in them.

Keywords: *Education, Education to think, Teaching methodologies, Cooperative Learning, Problem-Based Learning.*

Problem-Based Learning in Improving Secondary Students' Problem-Solving Skills in Science: A Meta-Analysis

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Abstract

In 21st-century science education, students should learn holistically. One of the needed skills by a 21st-century student is being a critical problem solver. Problem-based learning over a period has become one of the developed and progressive teaching and learning strategies. The researchers have identified the need to revisit and conduct a systematic review of the effectiveness of problem-based learning in improving secondary students' problem-solving skills in science. From the inclusion and exclusion criteria, the researchers were able to identify 14 studies from Ethiopia, Indonesia, the Philippines, and Thailand. The included studies were conducted from 2015 up to the second half of 2022 and obtained from the search engines Google scholar, Scopus, Crossref, and ERIC with the support of the use of Publish and Perish. With the use of sample size (n=1 153), mean and standard deviation were analyzed using the Comprehensive Meta-Analysis version 4 to determine the Hedge's g effect size value, subgroup analysis, forest plot, funnel plot, and Begg-Mazumdar test. Results have shown that problem-based learning when used, had a small and positive effect in improving secondary students' problem-solving skills in science (ES= 0.315). The identified scientific discipline yielded a small and positive effect in improving students' problem-solving skills. As a recommendation, empirical studies should be conducted on how Science teachers used problem-based learning in facilitating students' learning processes and skills.

Keywords: *meta-analysis method, problem-based learning (PBL), problem-solving skills (PSS), science, secondary students*

Why Khmer in the South of Vietnam Attach their Life with Temples

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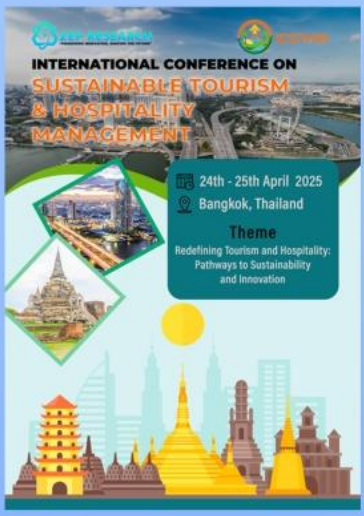
Abstract

The temple plays an essential role in the life of the Khmer people in the South of Vietnam. They not only go to the temple to practice religious rituals, but it is also a place for them to get education. What they learn includes their own national language, in addition to the customs and moral lessons taught by the teachers who are monks. The article emphasizes the current activities taking place at Khmer temples in Mekong Delta. From the research results of the article, the author wishes to provide a scientific basis for domestic and foreign educators, authorities about the key role of Khmer temple in people's daily life.

Keywords: *Khmer, temple, role of Khmer temple.*

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