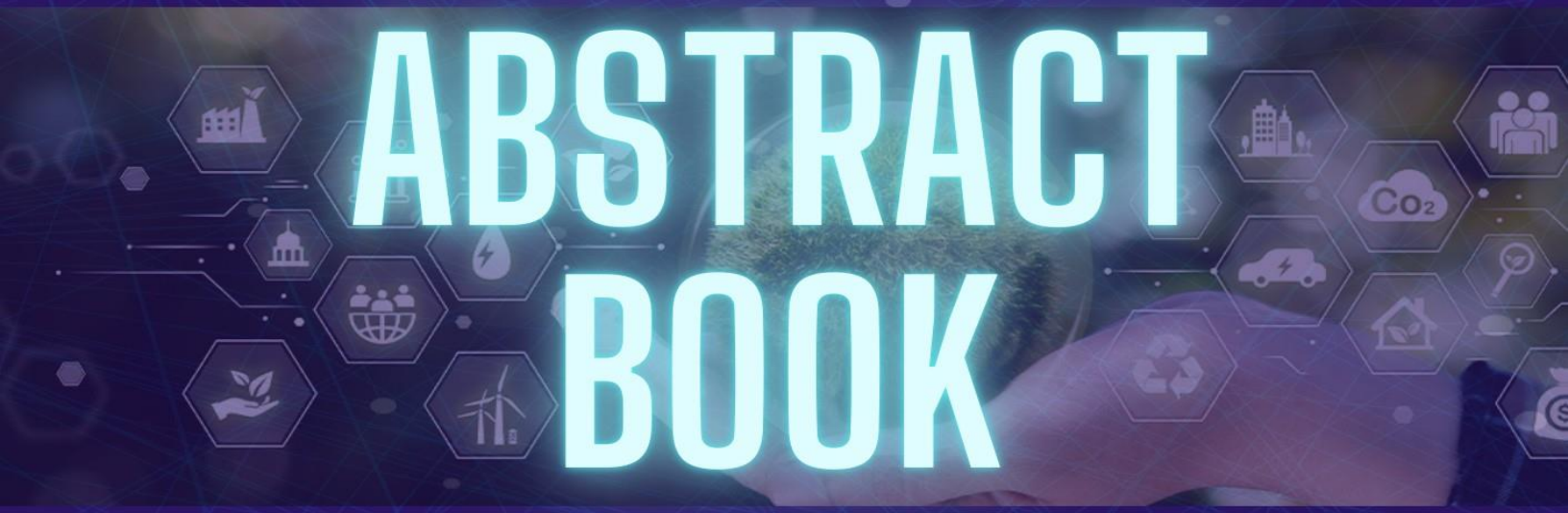
10TH INTERNATIONAL GRADUATE CONFERENCE ON ENGINEERING, SCIENCE AND HUMANITIES

" TOWARDS SUSTAINABLE FUTURES: INNOVATIONS AND COLLABORATIONS IN A CHANGING WORLD "



ABSTRACT BOOK

IGCESH 2024

27TH & 28TH AUGUST 2024

ICGESH 2024

UNIVERSITI TEKNOLOGI MALAYSIA

MALAYSIA

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THE 10TH INTERNATIONAL GRADUATE CONFERENCE ON ENGINEERING, SCIENCE AND HUMANITIES

Universiti Teknologi Malaysia, 27th - 28th August 2024

ABSTRACT BOOK

"TOWARDS SUSTAINABLE FUTURES:
INNOVATIONS AND COLLABORATIONS IN A CHANGING WORLD"

Organized by:
UTM Postgraduate Student Society (PGSS UTM),
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WELCOME REMARKS FROM GENERAL CHAIR

Assalamualaikum w.b.t and Warm Greetings,

It is with great pleasure that I extend my warmest welcome to all the esteemed researchers, postgraduate students, and participants from around the globe to the 10th International Graduate Conference on Engineering, Science, and Humanities (IGCESH 2024). This biennial event is a significant platform for knowledge exchange, fostering collaboration, and inspiring innovation across various fields of study.

The theme for this year, "Towards Sustainable Futures: Innovations and Collaborations in a Changing World," reflects our collective commitment to addressing the pressing challenges of our time while paving the way for a brighter future through interdisciplinary research. As we gather to share our insights and discoveries, I am confident that the discussions and exchanges that will take place here will contribute significantly to advancing our understanding and practices in these critical areas.

I would like to take this opportunity to express my heartfelt gratitude to our organizing committee, the School of Graduate Studies, Universiti Teknologi Malaysia (UTM), our keynote speakers, session chairs, and all participants for their dedication and hard work in making this conference a reality. Your contributions are invaluable, and I am certain that IGCESH 2024 will be a rewarding experience for all.

May this conference be a catalyst for new ideas, meaningful collaborations, and impactful research that will shape the future of education and beyond. I wish you all a productive and enriching conference.

Thank you.

Dr Norah Md Noor,
General Chairperson
10th International Graduate Conference on Engineering, Science, and the Humanities (IGCESH-2024)

WELCOMING REMARKS BY IGCESH 2024 CHAIRPERSON

Assalamualaikum wbt and warm greetings,

On behalf of the committee, I would like to extend my sincere gratitude and appreciation to the Honourable YB Nik Nazmi Nik Ahmad, Minister of Natural Resources and Environmental Sustainability, for officiating IGCESH 2024, and to the Honourable Professor Datuk Ir. Ts. Dr. Ahmad Fauzi bin Ismail, Vice-Chancellor of Universiti Teknologi Malaysia (UTM), for his insightful welcoming remarks. I would also like to thank our keynote speakers, Dr. Pramila Tamunaidu, Research Fellow at the Malaysia-Japan Advanced Research Centre (MJARC) and Malaysia-Japan International Institute of Technology (MJIIT), and Associate Professor Ts. Dr. Azanizawati Ma'aram, Deputy Dean (Academic & Student Affairs), Faculty of Mechanical Engineering UTM. Additionally, I extend my appreciation to our Golden Standard Sponsor, Proofreading by a UK PhD, the School of Postgraduate Studies Universiti Teknologi Malaysia (SPS UTM), the Postgraduate Student Society (PGSS UTM), the IGCESH 2024 committee members, and all conference attendees who have contributed directly or indirectly to the organization of the 10th International Graduate Conference on Engineering, Science, and the Humanities (IGCESH).

It is a great pleasure to warmly welcome graduate students, researchers, and distinguished guests from across the globe to this 10th IGCESH conference, where we gather to discuss and explore the theme, *"Towards Sustainable Futures: Innovations and Collaborations in A Changing World."* This theme has been chosen to emphasize the critical importance of sustainability in our rapidly evolving world and the need for innovative solutions and collaborative efforts to secure a better future for all.

This conference is a unique platform where knowledge from various disciplines converges to foster creativity, inspire innovation, and promote sustainable practices. The diverse insights and perspectives shared by keynote speakers, presenters, and participants will undoubtedly contribute to advancing our collective understanding and efforts toward sustainable and innovative collaborations.

As we gather in this virtual space, it is important to recognize that the success of IGCESH 2024 has been made possible by the generous support of our sponsors, the commitment of the IGCESH General Chair, the steadfast assistance from the UTM School of Graduate Studies (SPS UTM), and the dedication of the IGCESH 2024 committee members. I am truly thankful for their ongoing support, which has been crucial in bringing this event to fruition.

I hope that IGCESH 2024 provides you with valuable insights, knowledge, and experiences that will be beneficial both professionally and personally. We also look forward to welcoming you to future editions of IGCESH. Thank you, and may this conference be a fruitful and inspiring experience for all.

Evarina Amiron,
Chairperson
10th International Graduate Conference on Engineering, Science, and the Humanities (IGCESH-2024)

ABOUT

The 10th International Graduate Conference on Engineering Science & Humanity 2024 (IGCESH 2024) is a biennial postgraduate conference organized by the UTM Postgraduate Student Society (PGSS-UTM) in collaboration with the UTM School of Graduate Studies (SPS-UTM). It provides a forum for accessing the most up-to-date and authoritative knowledge from graduate student's research findings covering both industrial and academic world's thereby sharing best practice in the fields of Engineering, Sciences and Humanities. With the conference theme "Synergizing Interdisciplinary Research for a World-Class Society", IGCESH 2022 aims to provide an avenue to highlight recent developments and identify emerging and future areas of growth in these exciting fields. The conference is held at Universiti Teknologi Malaysia (UTM), Johor Bahru, Johor Malaysia from 15th to 16th August 2022 and participated by all postgraduate students and researchers across different sectors.

MISSION

1 To encourage the communication and collaboration of researchers from different universities
1 To stimulate the research activities among researchers by sharing knowledge and findings
1 To enhance the presentation skills of researchers
1 To provide publication opportunities to researchers

IGCESH 2024

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Sensitivity Of Graphene Oxide Coated Tapered No-Core Fibre Sensor For Uric Acid Detection

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ABSTRACT

This paper analyzes the development, progress, and evaluation of a sensor system, which mainly consists of tapered no-core fibre (TNCF) for detecting uric acid (UA). To augment the capability of TNCF diameter, CO_2 lasers were used for creating the optical-based refractive index sensor with a smaller diameter of fibre sensor. This action will allow for better interaction with the surrounding samples, improving the sensitivity. The sensing region was fixed to improve the sensitivity with a coating of graphene oxide (GO) solution. Experimental findings showed that the TNCF-GO sensor exhibited a higher sensitivity value at 0.00782 ± 0.00049 nm/µM, while NCF-GO sensor sensitivity only at 0.00447 ± 0.00019 nm/µM and NCF sensor sensitivity only at 0.00387 ± 0.00027 nm/µM. The TNCF-GO sensor demonstrated better performance compared to the others. This research improves the development of a susceptible and effective sensor for UA detection, especially in biomedical health diagnostics.

Implementation Of A Hybrid PID Controller Based On Genetic Algorithms For Modular System Position Control

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ABSTRACT

An analysis of the DC servomotor's nonlinear features, design challenges, and mechanical variation based on the operational setting shows that a precise controller cannot be produced using the regular Proportional-Integral-Derivative (PID) controller alone. This study suggests a unique way to optimize direct current motor control in position mode by reducing transient response characteristics with value overshoot, rising time, and settling time. The genetic algorithm (GA) was proposed to obtain the appropriate parameters for self-tuning for Kp, Ki, and Kd. The work was accomplished in three stages: first, configuring the system with the standard controller. Second, replacing the standard controller with the GA algorithm, the integral time absolute error (ITAE) was chosen for the DC servomotor control system. As a last resort, combining the Genetic Algorithm controller with the standard controller to form a hybrid controller. After implementing the simulation, the outcomes show that the dual controller demonstrates exceptional efficiency in the control accuracy response with a small increase in overshoot of 1.667%, the percentage reduction in the tr 19.83%, ts 29.18%, and the error steady state of 9.373% of the DC servo motor in position mode.

Relationship Between Safety Culture And Safety Performance In SME Malaysia

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ABSTRACT

Small and medium enterprises (SME) in Malaysia although contribute to 97.3% of the total business establishment, still facing safety issues in their organization. Although many initiations from both government and internal organizational team, developing a good safety culture is still in far reach. Many different elements contribute to safety culture, all of which work together to produce safety performance. Safety performance is also measure by its lagging and leading indicators. The purpose of this study is to investigate the connection between Malaysian SME safety culture and safety performance. The safety culture and safety performance were measured by adopting an established Jafri et al., (2024) questionnaire. A total of 263 valid questionnaire responses were collected from the local SMEs based on DOSH Malaysia database. Reliability test was performed using IBM SPSS version 27, and the results showed that the survey is reliable with a global Cronbach's Alpha score of 0.97. A theoretical model was constructed to test the correlation between safety culture and safety performance. Then, PLS-SEM technique will be use to examine the relationship and estimate the parameters of the structural model.

Thermal-Aware Test Scheduling And Floor Planning For Three-Dimensional Stacked Integrated Circuits

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ABSTRACT

Testing three-dimensional stacked integrated circuits (3D-SICs) remains a challenging task due to the complexity of generating an optimized test schedule that minimizes test time. One of the main challenges is accessing upper dies, which is only possible through the bottom die, requiring the extension of Test Access Mechanisms (TAMs) via Through-Silicon Vias (TSVs). Additionally, the limited number of primary I/O pins, TSVs, and TAM width necessitates efficient resource allocation. Effective thermal management is crucial due to the high-power consumption of cores and uneven power distribution, which pose overheating risks. Advanced concurrent test scheduling is essential to allocate resources effectively while maintaining power and temperature limits. This research proposes a thermal-aware test scheduling optimization combined with floor planning for 3D-SICs, where the floorplanning is computed using a simulated annealing algorithm based on a set of pareto optimal cubes chosen by an Ant Colony Optimization (ACO) algorithm. The subsequent thermal-aware 3D-SIC test scheduling, considering resource and power constraints, is generated using a 3D Bin Packing method. The objective is to minimize test schedule time while considering resource and power constraints. Experimental results using multiple ITC'02 benchmark circuits indicate an average estimated improvement of 0.25% in test schedule efficiency when incorporating floor planning into test scheduling, compared to scheduling without floor planning. These findings underscore the significance of integrating thermal-aware test scheduling with floor planning, highlighting its potential to significantly enhance test efficiency, reduce power consumption, and ensure reliable testing of 3D-SICs under stringent resource and thermal constraints.

Maximum Power Point Tracking Using Fuzzy Logic Control In Solar PV Systems

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ABSTRACT

This study conducts a comparative analysis between the conventional Perturb and Observe (P&O) method and fuzzy logic control (FLC) to determine the superior approach for maximizing power extraction in solar photovoltaic (PV) systems. The P&O method, frequently employed for Maximum Power Point Tracking (MPPT), demonstrates significant oscillations upon reaching the maximum power point (MPP) and necessitates a considerable duration to achieve stability. The dynamic performance of the photovoltaic (PV) system output is examined by utilizing MATLAB simulations of Perturb and Observe (P&O) method while considering different irradiance levels. To overcome the use of the P&O method, a fuzzy logic controller is employed to manage the constraints and evaluate the system. The experiment were conducted in different irradiance and the output performance of both FLC and P&O was noted such as at 800 W/m2 irradiance, FLC stabilizes at a voltage of approximately 258V but P&O continues to show significant oscillations with lower voltage around 240-250V. The findings indicate that FLC significantly mitigates variations at the maximum power point (MPP) and achieves a greater output value with a more rapid response time while the P&O algorithm exhibits significant oscillations and delayed responses, particularly under higher irradiance levels. The study's findings indicate that FLC is a superior and more dependable solution for MPPT in PV systems, resulting in enhanced overall reliability and efficiency.

Enhancing Human Factors Engineering (HFE) In Front-End Engineering Design (FEED) Through Valve Criticality Analysis

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ABSTRACT

Human Factors Engineering (HFE) is a multidisciplinary field focusing on interactions between individuals, their jobs, and the organizational system, aiming to enhance human and system performance. During the Front-End Engineering Design (FEED) stage, one of the significant challenges is ensuring that critical components, such as valves, are designed and positioned to facilitate safe and efficient operation and maintenance. Without proper consideration, valve placement and design can lead to increased risks, operational inefficiencies, and potential safety hazards. This paper introduces the integration of Valve Criticality Analysis (VCA) within the Human Factors Engineering (HFE) framework during the Front-End Engineering Design (FEED) stage to tackle this problem. The method involves identifying and categorizing all valves based on criticality criteria, evaluating their functions, and assessing the potential impact of their failure. This categorization process guides optimal valve design and placement. Key findings from the application of VCA during the FEED stage reveal that categorizing valves according to criticality enhances the identification of high-risk components, improves operational efficiency and safety, and minimizes design-related human factors risks when integrated early in the design process. This paper presents a novel approach incorporating VCA within the HFE framework during the FEED stage. The significant contribution lies in providing a structured methodology for categorizing and designing critical valves, enhancing safety and operational performance, and setting a precedent for future projects.

Automated Pre-Screening Method for Production Enhancement Using Electrical Submersible Pump in Malaysia's Offshore Brown Field

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ABSTRACT

With more than 80% of Malaysia's fields relying on gas lift, addressing late-life challenges becomes imperative, necessitating enhancements in secondary and tertiary production to sustain oil production. Issues such as gas lift gas shortages, aging infrastructure, and rising water cut impose constraints on efficient oil recovery, driving the quest for alternative lift technologies in offshore Malaysian brownfields. Nonetheless, replacing gas lift systems is challenging. This study advocates an automated pre-screening approach to swiftly identify candidates, minimizing the time and manpower required to sift through a vast number of wells, thus boosting the production optimization endeavors for offshore brownfields in Malaysia. The proposed automation system tested with data from multiple fields (Field B, D and S) to pre-screen strings and identify opportunities before advancing to detailed screening using well modeling. From the array of attributes analyzed, crucial parameters for candidate pre-screening were identified. Automating this pre-screening data narrows down potential candidates for in-depth analysis, facilitating ESP design, economic assessment, and other production enhancement activities. By digitizing this process, automation simplifies the identification of enhancement candidates, saving time and expanding the pool of candidates available for production enhancement initiatives. Furthermore, this automation method extends beyond ESP candidates to encompass acid stimulation, gas lift optimization, and water shut-off candidates. By efficiently processing and analyzing data, this automated pre-screening approach offers significant time savings, identifies a pool of candidates, and uncovers opportunities for production enhancement activities, thereby revolutionizing the well modeling process and enhancing decision-making throughout candidate maturation.

The Impact of Artificial Intelligence on Cybercrime: Analysis

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ABSTRACT

This paper examines the multifaceted impact of Artificial Intelligence (AI) on cybercrime, highlighting both the potential threats and defences associated with this technology. AI, encompassing machine learning, deep learning, and symbolic learning, has revolutionized various sectors but is also increasingly exploited by cybercriminals to enhance attack sophistication and evasion strategies. The study provides an overview of how AI enables more sophisticated and automated cyber-attacks, from malware to advanced persistent threats. It discusses the dual role of AI in cybersecurity—both as a tool for attackers and a means of defense. The paper also explores the ethical and legal implications of AI in cybercrime, emphasizing the need for updated legal frameworks and the mitigation of biases in AI systems. Future trends suggest that as AI technology advances, its role in cybercrime will expand, necessitating more robust countermeasures and ethical considerations. Recommendations include developing comprehensive national AI strategies and improving resilience against AI-driven attacks.abstract should not exceed 250 words.

Challenges and Solutions in Ad Hoc Wireless Networks: A Survey

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ABSTRACT

Ad hoc wireless networks, characterized by their lack of fixed infrastructure and dynamic topologies, present unique challenges and opportunities in the realm of network communication. These networks require each node to function not only as a host but also as a router, forwarding data for its peers. This decentralized architecture is ideal for scenarios where traditional infrastructure is infeasible, such as in disaster recovery, battlefield communications, and environmental monitoring. Despite their versatility and potential, ad hoc networks face significant challenges including fair medium access, routing complexities, service location issues, and energy constraints. Limited bandwidth and dynamic network topologies further complicate their design and operation. Addressing these challenges requires innovative approaches to power management, communication reliability, and network security. This paper explores the definition, characteristics, applications, and key challenges of ad hoc wireless networks, emphasizing the critical role of efficient design and robust protocols to harness their full potential in both civilian and military applications

A Review of Post COVID-19 Indoor Air Quality in Tropical Climate

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ABSTRACT

In the post-COVID-19 era, the need to maintain indoor air quality (IAQ) has taken center stage. This is especially true for regions that have a tropical climate, including Indonesia and Malaysia. Tropical areas present unique challenges to the IAQ compared to regions with more temperate climates. These areas often come under pressure from pollutants, mold, mildew, or dust in the air due to inadequate ventilation. Given the health and well-being issues caused by the pandemic, IAQ is increasingly recognized as a key issue in virus transmission. Typical means of improving IAQ, such as air conditioning are not aligned with sustainable design principles. There is a need for a combination of natural ventilation and other IAQ-relevant energy-efficient technologies. This review explores several key issues, the commonality of IAQ and post-COVID-19, and climatic challenges for temperate climates and the tropics, with sustainable design strategies to improve IAQ and energy consumption.

Blockchain Consensus For Resources Constraint Devices: A Hybrid Approach Using PoA, DPoS And Threshold Cryptography

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ABSTRACT

This research explores the development of a hybrid consensus algorithm that combines the benefits of Proof of Authority (PoA), Delegated Proof of Stake (DPoS), and threshold cryptography to create a secure, efficient, and scalable consensus mechanism for resource-constrained devices. The proposed algorithm addresses traditional consensus algorithms' limitations in resource-constrained environments, where energy efficiency, security, and decentralisation are crucial. By leveraging the strengths of PoA, DPoS, and threshold cryptography, this hybrid approach is anticipated to provide a robust and adaptable consensus mechanism to support many applications in IoT, edge computing, and other resource-constrained domains. The research aims to investigate the feasibility, performance, and security of this hybrid consensus algorithm and its potential to enable secure, decentralised, and scalable blockchain-based systems for resource-constrained devices.

Evaluation Of China's Rural Agricultural Development Response To Foreign Intelligent Agriculture Experience

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ABSTRACT

China has always placed a high priority on the advancement of agriculture and given the encouragement of agricultural modernization a significant role. Intelligent agriculture is a new framework for advancing agricultural modernization. Hence, this paper aims to examine the China's rural agricultural development response to the foreign intelligent agriculture experience in term of agricultural competitiveness and sustainable agricultural development. This paper employs comparative analysis of the literature to reach conclusions after reviewing numbers of publications on intelligent agriculture, including Chinese and English literature as well as government policies and developments in different nations. The findings highlighted that China's intelligent agriculture growth is starting to show results, however there are still several issues across the board. For instance, Lack of talents, insufficient scale and intensification, lack of specialized agricultural production information, and imperfections in the infrastructure service facilities of intelligent agriculture and the management system of agricultural science and technology innovation. In response to these issues, suggestions were made to cultivate awareness of the development of intelligent agriculture and to strengthen planning leadership and resource integration. Therefore, this paper was able to examines and draws inspiration from the intelligent agriculture development systems in advanced nations like Europe and the United Kingdom, identifies the state-of-the-art and emerging trends in Chinese agriculture, and offers a development framework for the advancement of intelligent agriculture in China.

AI-Driven Polycrisis Mitigation Strategies In Residential High-Rise Buildings: A Critical Literature Analysis

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ABSTRACT

In the context of escalating global polycrises, residential high-rises face unprecedented challenges that threaten infrastructure and occupant safety. This literature review examines the role of Artificial Intelligence (AI) in managing these crises within vertical communities. Covering studies from 2014 to 2024, the review utilized a comprehensive search strategy across Web of Science, Scopus, IEEE Xplore, Google Scholar, and PubMed, focusing on AI, polycrisis, and high-rise buildings. The analysis identified 87 relevant studies showcasing the potential of AI technologies—such as machine learning, natural language processing (NLP), and computer vision—to enhance crisis management. Key findings indicate that AI can significantly improve emergency preparedness, real-time information dissemination, and resource optimization. Computer vision advances hazard detection accuracy, facilitating faster evacuations and better safety. The integration of IoT sensor networks with predictive analytics reduces false alarms and enhances early threat detection. However, the review also highlights challenges, including data privacy, cybersecurity, scalability, and the balance between AI autonomy and human oversight. Future research should address these limitations by focusing on real-world case studies to assess AI performance across diverse crisis scenarios. Development of more robust AI models and their integration with existing crisis management frameworks is essential. Ethical considerations, particularly regarding privacy and bias, must also be scrutinized to ensure that AI solutions are both effective and equitable. This review provides valuable insights into using AI to bolster urban resilience and support Sustainable Development Goals (SDGs) in high-rise residential settings, emphasizing the need for strategic AI integration and ongoing research to address current gaps and challenges.

Cross-Cultural Emotion Analysis On X Using Bidirectional Encoder Representations From Transformers (BERT)

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ABSTRACT

It is essential to understand how environmental factors and cultural backgrounds affect emotional responses to build Human-Computer Interaction (HCI) technologies. This study uses the BERT (Bidirectional Encoder Representations from Transformers) model to investigate the emotional landscape of interactions on the X platform across various cultural contexts. The aims of the study are as follows: (1) Gather and prepare X platform data from COVID-19 sources in India, Pakistan, Malaysia, the US, the UK, Australia, and Canada. (2) Use a BERT model to qualitatively analyze tweet sentiment. (3) Assess the accuracy of the model and look for sentiment trends in tweets from nations throughout the pandemic. The BERT model successfully classified sentiment, as seen by its 80.29% accuracy rate on test data. Sentiment research showed that positive sentiment was far more prevalent in the US, Canada, and Australia, indicating that these countries were better able to adjust to the COVID-19 situation. Stability was seen in the balanced sentiment distributions displayed by Pakistan, India, and the United Kingdom. Despite having fewer data points, Pakistan and Malaysia continued to have largely positive attitudes. This study provides the basis for a comparative analysis of emotional responses by taking contextual and cultural aspects into account.

GNSS Data Monitoring Drought: Current Applications And Outlook

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ABSTRACT

Continuous and dense Global Navigation Satellite System (GNSS) observations have become an essential tool for drought monitoring. The standard methods used to construct drought indices from GNSS data are primarily based on atmospheric precipitation water vapour for meteorological drought indices and inverting land water storage changes for hydrological drought indices. Although GNSS has become a research hotspot in the current field of hydrological geodesy, systematic research on extreme drought aspects using GNSS data still needs to be comprehensive. This study utilized standard literature retrieval methods to collect research relevant to GNSS in atmospheric precipitable water vapour, GNSS inversion of water storage, and extreme drought aspects. Based on this, the latest advancements in studying extreme climate change using GNSS were analyzed and summarized. A summary and outlook on the current inadequacies and future trends in GNSS drought monitoring were provided, aiming to serve as a reference for future research on monitoring regional drought changes and related applications using GNSS technology.

How Does Renewable Energy Technology In The Transportation Sector Impact The Environment? A Bibliometric Review

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ABSTRACT

Renewable energy sources have gained substantial significance concerning the depletion of non-renewable energy resources and the adverse environmental consequences associated with their consumption. However, the possible impact of shifting from non-renewable energy to renewable energy sources is still debatable. Moreover, the broadening development of renewable energy technologies mainly in the transportation sector determines the viability of renewable energy is scarce. Hence, this study aims to provide an understanding of the impact of Renewable energy technology on the environment and to evaluate the viability of renewable energy implementation in the transportation sector. This bibliometric review provides insights on advancing renewable energy technology, and current evidence present from different perspectives. The extensive search of this study revealed that the negative impacts of renewable energy can be mitigated through careful planning and implementation of renewable energy projects, such as conducting thorough environmental impact assessments and developing appropriate waste management. The environmental impact associated when electrical generation relies on fossil fuel is worse, while renewable energy can substantially reduce emissions, for example in electric vehicles. This literature review provides fundamental evidence that highlights the strong viability of renewable energy specifically in electric vehicle applications in terms of economic, social, environmental, and technical aspects.

Virtual Screening By In Silico Molecular Docking And Pharmacokinetic Of Chalcone Hybrid As A-Glucosidase Inhibitor

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ABSTRACT

Diabetes, particularly type 2, is increasing in prevalence every year and has emerged as the third-most significant global health issue. One of the critical approaches to targeting enzymes that regulate carbohydrate metabolism is the α-glucosidase enzyme. Inhibiting this enzyme is capable of reducing glucose absorption in the blood by causing the carbohydrates to break down. Commercially available drugs usually have unwanted side effects; hence, the development of novel drugs is a must. This current study aims to develop anti-diabetic drugs using a computational approach to screen out the best compounds **(1–9).** We performed in *silico* molecular docking using Auto Dock 4.0 and visualized the results using PyMOL and Discovery Studio. The study found binding energies (BE) that were greater than or equal to acarbose (-8.08 kcal/mol) and between -6.65 and -8.70 kcal/mol. The drug-like properties, pharmacokinetics, toxicity profile, and drug score were performed using the SwissADME, AdmetSAR, and Molsoft programs. Compounds **1–9** obeyed the Lipinski Rule of Five, and most of the compounds had drug-like properties and were non-toxic. Besides, they have promising interactions with α-glucosidase enzyme. Hence, they have the potential to develop into potent anti-diabetic drugs with lesser toxicity.

Architectural Design Intervention As A Solution To The Problem Of Lack Of Sustainable And Equitable Housing In Nigeria

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ABSTRACT

Housing offers not just shelter but also a feeling of security for the future and helps to form communities. In Nigeria, several challenges are associated with houses and architecture, particularly in the context of sustainability and traditional building practices. One of the primary concerns is the lack of awareness and comprehension among the general population, developers, and policymakers regarding the concept and advantages of flexible architecture. Nigeria's lack of sustainable and equitable housing poses many challenges that impact the residents and the community as a whole. It is unknown how the use of design models/interventions in actual building situations and virtual simulations can aid the nation of Nigeria to become more resilient and dynamic by emphasizing inclusive and sustainable housing options that meet varied requirements and promote social fairness. This study examined the various interventions and efforts (architectural design and non-design interventions). The research's aim is to investigate whether or not improvement in designs through simulation studies on building typology could effectively and economically provide housing equity in slum areas in Nigeria. The study focused on the various architectural intervention variables, such as typology, segregation, centrifugation, and morphology, emphasizing typology, the one most suitable to Nigeria's peculiar housing challenges.

Work-Life Balance Among Malaysian Female Engineers: Bibliometric Review

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ABSTRACT

This study uses bibliometric analysis to provide a detailed overview of the research on the work-life balance of female engineers in Malaysia. By examining data from the Scopus database, this study identified 3,718 relevant documents using keywords related to work-life balance, Malaysia, engineers, and women. The analysis includes various aspects such as the number of sources published over time, the most cited countries, documents by country or territory, frequent keywords, and subject areas. Additionally, it offers a thematic overview of the challenges and trends related to the work-life balance of Malaysian female engineers. The content analysis of recent papers highlights emerging research trends and identifies gaps in the literature. The findings reveal that while female engineers play a crucial role in Malaysia, there is insufficient focus on helping them balance their professional and personal lives. This study contributes significantly to understanding this issue and suggests the need for further research in this area

Conceptual Model On The Adoption Of Chinese Mobile Operating System With Rogers' Diffusion Of Innovations Theory And Animosity

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ABSTRACT

The Mobile Operating System (MOS) market has been dominated by the Apple's iOS and Google's Android. From the origin perspective, the MOS market is clearly dominated by the US, which can be used as a political weapon in geopolitical conflicts. During the US-China trade war, Huawei was banned from using Android. In response to the ban, Huawei introduced its own MOS, HarmonyOS. However, as of 2024, HarmonyOS remains insignificant in the MOS market. This leads to the key focus of this paper, which is to determine the factors that affect the adoption of Chinese MOS. The researchers of this paper conducted literature reviews to gather relevant variables for this case study. The findings of this paper presented a conceptual model consisting of five innovations attributes by Rogers' Diffusion of Innovations (DOI) theory and the Animosity as a moderating variable. Five innovations attributes are hypothesised to have relationships with the intention to adopt Chinese MOS, and Animosity is hypothesised to moderate their relationships. This model can contribute to the academic theory of DOI and Animosity in the context of the MOS industry, and also provide real-world implications for all Chinese MOS developers, which in return benefit the consumers themselves.

Integrating Blended Learning In Programming Course: A Comprehensive Systematic Review

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ABSTRACT

This systematic review examines the integration of blended learning in programming courses, addressing the increasing diversity of student backgrounds and the consequent challenges in teaching programming effectively. The study synthesizes findings from recent research to identify effective strategies and best practice outcomes associated with blended learning approaches in this context. A comprehensive methodology was employed, involving the selection and analysis of relevant articles from databases such as Scopus and Web of Science, focusing on studies published between 2020 and 2024. The study was conducted following the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) framework. The database found (n=30) final primary data was analysed. Numerical results from the chosen literature reveal three main themes: (1) Effectiveness of Blended Learning in K-12 Education, (2) Best Practice of Blended Learning in Higher Education and Professional Development, and (3) Students' Understanding on Blended Learning in Programming and Computer Science Education. This review concludes that integrating blended learning in programming courses not only addresses diverse learning needs but also fosters improved academic outcomes and student engagement. Future research should continue to explore innovative blended learning strategies and their long-term impacts on programming education.

Visualization Of Collaborative Networks And Topic Trends In Proactive Environmental Strategies Towards Sustainable Development: A Bibliometric Review

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ABSTRACT

This study aims to identify research themes and emerging trends through a systematic bibliometric literature review on proactive environmental strategies towards sustainable development, using data from the Web of Science and Scopus databases over the past 20 years from 2004 to 2024. In this paper, a bibliometric analysis, a quantitative method for evaluating academic literature, was conducted to analyze and visualize the number of documents, collaborative networks, and keyword networks. The results indicate that research on proactive environmental strategies towards sustainable development has been increasing year by year. The main research themes were identified through keyword analysis using bibliometric tools including environmental management, environmental performance, corporate social responsibility, and product life cycle assessment. Emerging trends in this field include stakeholders, human resource management, green innovation, and environmental policy. Based on the literature analysis, this study proposes a future research agenda suggesting that future studies should focus on cross-country and cross-industry comparative studies, the influence of national political policies, stakeholder-driven green innovation, and the role of government in promoting proactive corporate environmental strategies. Focusing on these areas is important as they address the multi-faceted and interconnected nature of corporate environmental strategies. By examining the comparative contexts, policy influences, stakeholder roles, and governmental support, researchers can provide comprehensive insights and actionable recommendations for promoting sustainable business practices globally.

A Systematic Review On The Relationship Between Emotion Regulation And Psychological Well-Being In Higher Education

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ABSTRACT

This systematic review examines the relationship between emotional regulation (ER) and psychological well-being (PWB) in higher education from 2019 to 2024. It focuses on how emotional regulation strategies impact students' and teachers' psychological well-being and academic performance in higher education. The review synthesizes findings from 63 studies across multiple countries, highlighting both adaptive and maladaptive ER strategies. Methodologically, most studies employed quantitative approaches with a few utilizing mixed or qualitative methods. The findings consistently show that better ER skills correlate with lower stress and improved psychological outcomes. Additionally, demographic factors and contextual factors like the COVID-19 pandemic significantly moderate these relationships. The review emphasizes the importance of adaptive ER strategies for both students and teachers in higher education, recommending further research to explore more mediating and moderating factors, and suggesting the inclusion of more diverse samples to enhance generalizability.

Exploring The Integration And Impact Of Google Sites In Teaching And Learning: A Structured Scoping Review

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ABSTRACT

The growing prevalence of digital tools in educational environments has led educators to investigate innovative platforms such as Google Sites. The objective of this structured scoping literature review is to examine the extent and influence of Google Sites in educational settings, thereby addressing a substantial gap in the comprehension of its practical applications and advantages. A thorough search and analysis of academic literature are the foundation of the study, which aims to identify the primary themes, trends, and outcomes that are linked to the use of Google Sites in education. Methodologically, a comprehensive search of final, indexed articles from reliable databases Scopus and Web of Science published between 2020 and 2024 was carried out. This was followed by a stringent selection and appraisal process to include studies that satisfied predetermined criteria. The PRISMA framework informs the study's flow. Out of 316 initial records, the final review included 15 studies that covered a wide range of educational settings, from primary to higher education. The findings were divided into two themes which are digital pedagogy and online teaching strategies and impact of Google Sites towards student learning and digital literacy. The review concludes that Google Sites is a valuable tool for educators, offering a versatile and user-friendly environment that supports various pedagogical approaches. Future research should focus on longitudinal studies to further elucidate the long-term benefits and potential challenges associated with its integration into educational practice.

Customer Participation Ethical Review And Value Co-Creation On Sharing Economy Platforms Among Customers Of Green Food

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ABSTRACT

The objective of this research -was to design a framework to examine the impact of ethical reviews on participation and co-creation on sharing economy platforms among customers of green foods. Data was collected from 591 green food customers on share economic platform users in Ghana, using confirmatory factor analysis and structural equation modelling to address the essential role of ethical review as a mediating factor between customer participation and the intention to co-create value on share economy platforms. The results confirm that consumers' ethical reviews of sharing economy platforms act as a crucial mediating variable that influences customer participation and value co-creation .This study introduces a novel construct of customer ethics review, proposing a multidimensional framework for understanding consumers' ethical reviews of sharing economy platforms and their impact on value co-creation. This study is the first to examine the ethical review of sharing economy platforms, offering a new construct to enhance the ethics literature and providing practical insights for platform operators to foster customer participation and co-creation.

The Effect Of Pyramid Ownership Structure On Corporate Sustainability Performance Of Chinese Public Listed Companies: A Conceptual Review

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ABSTRACT

China's economy has rapidly grown to become the world's second-largest, yet this expansion has brought significant social and environmental consequences, posing critical challenges for its future development. Despite widespread adoption of sustainability strategies by Chinese companies, there remains a gap in understanding how corporate ownership structure influence overall corporate sustainability performance. This study addresses this gap by investigating the relationship between pyramid ownership structure and corporate sustainability performance in Chinese listed companies, underpinned by agency theory which emphasizes Type Ⅰ principal-agent and Type Ⅱ principal-principal conflicts. By proposing a conceptual framework, this study aims to examine whether pyramid ownership structure influences corporate sustainability performance differently in companies with different nature, and how agency conflicts mediate the relationship. This study provides insights for Chinese listed companies aiming to enhance sustainability performance through effective governance structures. By clarifying the interactions between pyramid ownership structure, agency conflicts, and corporate sustainability performance, managers can better achieve sustainable development goals and policymakers can use these insights to develop regulatory frameworks that incentivize sustainable practices among companies, thereby fostering corporate sustainability in China and globally. Furthermore, the framework offers a basis for empirical testing, facilitating broader discussions on the non-linear relationship between pyramid ownership structure and corporate sustainability performance.

Mastering Art For A Sustainable Future: Evaluating Teacher Proficiency In Visual Arts Education

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ABSTRACT

Visual arts education plays a crucial role in the educational landscape, providing students with opportunities to engage with complex social and environmental issues. This study aims to evaluate teachers' proficiency in delivering the Visual Arts Education curriculum, specifically focusing on their knowledge, teaching methodologies, and ability to effectively engage students. The research also emphasizes the importance of aligning educational practices with societal goals, such as sustainability, through innovative and collaborative approaches. Using a quantitative approach, the study finds that while teachers generally have a good understanding of essential aspects of Visual Arts Education, there are areas needing improvement, particularly in media techniques, teaching guidance, and digital skills. Teachers recognize the importance of the Curriculum and Assessment Standard Document (DSKP) and the need to diversify learning activities, but there is a need for more thorough exploration of media and techniques before students create work. The study concludes that targeted professional development is necessary to enhance teachers' effectiveness, ensuring a more comprehensive and impactful visual arts education that supports sustainable futures and innovative teaching methodologies.

Green marketing orientation and sustainable practice in fast food vendor's management

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ABSTRACT

The sustainable consumption behaviour of customers influences the sustainable practice of society. Customers' behaviour towards protecting the environment benefits society and promotes sustainable development. Green marketing strategies are crucial in the fast-food industry in Ghana. However, no existing work has demonstrated all the features needed for a fast-food vendor to become green marketing-oriented. To address this gap, this research adopts stress cognitive theory to ascertain the value of protecting the environment and develop a green marketing-oriented model. Using the Smart partial least squares method for structural analysis, the study examines the importance of green marketing orientation practices. The research hypothesizes that there is a significant relationship between green marketing and sustainable development. A total of 387 responses were collected from customers of a green fast-food vendor. The study found that social responsibility among fast food vendors could increase consumer loyalty through green marketing practices. The study suggests that managers of food vendors should prioritize green marketing strategies to gain a competitive advantage by training internal stakeholders to adhere to the company's social values and steer the business towards an ecologically conscious direction.

Intertextuality From The Discourse Linguistics- The Stories Of Badiaa Amin As A Model

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ABSTRACT

Our discourse is almost repetitive, in one way or another. Sometimes this manner is clear, other times indirect. Even when we engage in dialogue amongst ourselves, this engagement renders the new text reliant on familiar texts in terms of form, enriched by evoking other worlds into its own realm, transforming its constitutive elements with new meanings through a narrative interweaving.

On another note, Iraqi writer (Badiaa Amin) confirms this reality in her story collections, crafting a textual mosaic with its own distinct implications, depending on content, context, and event. The significance of this research lies in its application of a novel approach to linguistic intertextuality studies, according to the insights of the German linguistic critic (Kirsten Adamstick), employing discourse analysis to elucidate the interconnectedness of texts and the interactive relationship between the invoked text / the invoked and the new text. It explores a symbolic dimension linking these texts and studies metaphorical interrelations among them, categorizing these intertextualities based on their modalities. Moreover, it examines the relationship between these invoked texts and the ideologies the author aspires to in her stories.

Optimization Path of Legal Rights Protection for College Students in Central China

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ABSTRACT

This paper explores the current status of the protection of the legal rights and interests of college students in central China. Through a comprehensive analysis of the existing legal framework, relevant policies and semi-structured interview data, it is found that the rights and interests of college students are often undermined by campus bullying, naked loans and telecommunications fraud. Due to the special vulnerability of the college student group in the socioeconomic background of the central region, they face problems such as not understanding the law and difficulty in finding suitable helpers in the process of protecting their rights. Drawing on comparative studies and best practices, this paper proposes to optimize the rights protection channels in many aspects, such as clarifying the mandatory reporting obligations of relevant responsible entities in legislation, establishing legal aid agencies in colleges and universities, and supporting rights protection APPs. This study aims to contribute to the establishment of a more sound and effective rights protection system for college students in the central region, and ultimately promote the welfare of college students and create a more fair and just educational environment.

The Use Of CEFR In English Language Education Reform: Foreign Textbooks And Cultural Issues

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ABSTRACT

English language education in Malaysia has undergone reforms to meet economic growth needs and nurture human capital for international connections. Since 2017, foreign textbooks have been introduced to match CEFR standards, but concerns have been raised about their cultural impact. This paper evaluates the cultural elements in CEFR textbooks from primary to secondary levels in Malaysia using a qualitative synthesis method and cross-verification. A total of 13 journal articles were reviewed, revealing that foreign textbooks depict more foreign cultures such as celebration, seasons, transportation, food, attire, characters' names, and Spanish vocabulary. However, some elements are culturally neutral. The use of foreign textbooks promotes diversity, authentic language usage, and opens students' horizons, making them more appreciative of others. Teachers are encouraged to be creative in adapting materials if foreign elements are deemed challenging for students.

Integration Of Geogebra In Teaching Geometry To Year 5 Pupils In Primary School

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ABSTRACT

The TIMSS 2019 results indicated that 55% of Form 2 students in Malaysia struggle with learning geometry concepts. This quasi-experimental research aims to improve students' geometric concepts by developing a geometry learning module. The module integrates GeoGebra and aligns all five van Hiele Learning Phases in the learning activities. The learning activities in this module focus on building and developing basic concepts in geometric measurement such as perimeter, area, and volume. In this research, 50 Year Five students in Tawau District were divided into two groups: the experimental group (n=25) and the control group (n=25). The experimental group used the module while the control group was taught using a traditional teaching style. Pre- and post-tests were used in measuring their geometric thinking levels by referring to the first three van Hiele's Geometric Thinking Levels: visualization, analysis, and informal deduction. The data analysis showed a noticeable increase in geometry thinking levels in the experimental group. This showed that the usage of the geometry learning module integrated with GeoGebra was beneficial in helping pupils improve their learning rather than the traditional teaching style. In conclusion, using technology such as GeoGebra in learning activities can help students learn basic geometry concepts effectively.

Influencing Factors And Implementation Path Of Tax Compliance In Chinese SMES

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ABSTRACT

The purpose of this paper is to explore the influencing factors and improvement paths of tax compliance in Chinese small and medium-sized enterprises (SMEs). Through semi-structured interviews with the staff of 12 SMEs, this study finds that the failure to establish a tax compliance system, the lack of professional competence of SMEs' tax staff, the failure to use tax incentives correctly, and the complexity of tax laws and regulations are the main obstacles affecting SMEs' tax compliance. Based on the results of the study, this paper puts forward targeted suggestions to improve the tax compliance level of SMEs, with a view to providing references for the government to improve tax policies and SMEs to improve their tax management level.

Digital Storytelling For Enhancing English Language Speaking Skill Among Secondary School Students

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ABSTRACT

The study aims to create and implement digital storytelling (DST) activities via Microsoft Teams for form four students, evaluating their impact on individual speaking performance. Additionally, it seeks to gauge students' perceptions of these activities on Microsoft Teams as a virtual learning platform. The effectiveness was assessed through a pre-experimental design involving 30 form four students, using speaking tests and perception questionnaires. Pre-test and post-test scores were compared using the Wilcoxon Signed Rank test, indicating a significant improvement in speaking performance ($p<0.001$). Students also reported positive impacts on learning process and outcomes, affirming Microsoft Teams' suitability as a learning platform. The findings suggest that these activities can enhance the speaking performance of form four students. This underscores the potential of DST learning activities on Microsoft Teams for educational enhancement.

The Influence Of Gamification On Student Motivation And Academic Achievement: Insights From A Pre-Experimental Study

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ABSTRACT

Educators continue to explore how to adapt to the needs of the technology and formulate learning curricula that can greatly affect learners' motivation to study among different learners' learning styles. However, there is a lack of research examining the relationship between gamification tools and their impact on academic performance and motivation across various learning styles, particularly in secondary education within international school settings. Therefore, this pre-experimental research aims to explore the learning style and motivation of secondary school students in international schools and the relationship between the integration of gamification tool in the classroom and academic performance. A total of 25 Year 7 secondary school students from the Mandarin Advance class of an international school in Johor Bahru were recruited to participate in this study. All of them were given the links to Google Forms to access the questionnaire, which included demographical questions, VAK Learning Styles, Motivation (ARCS) and Quizizz Preference Questionnaire. Wilcoxon and Kruskal-Wallis tests were applied to investigate the differences between the variables. The results revealed significant differences between students' academic performance and motivation element (Satisfaction) after using Quizizz. However, there is no significant difference in academic performance and motivation among different learning styles after using Quizizz. Research also found no relationship between motivation level and academic performance among different students' learning styles. However, students believe that Quizizz is very interesting and useful in learning, so schools and teachers can better use Quizizz to guide students in the classroom by understanding students' learning methods, thereby improving students' motivation to learn. Future researchers will be able to refer to the limitations and recommendations if they conduct similar research.

Enhancing Creative Thinking In Non-Major Computer Science Students Through Interactive Visual Learning Environments

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ABSTRACT

This study investigates the impact of an interactive visual learning environment on creative thinking and performance among non-major computer science students. Utilizing the Torrance Incubation Model (TIM) and visual interactive tools, the research aimed to enhance creative thinking skills. A pre-experimental, single-group, pre-post-test design was employed, involving sixteen non-random, non-major undergraduate computer science students. Participants were exposed to a visual interactive learning environment using visualization for five weeks. Before and after the intervention, participants completed Torrance Tests of Creative Thinking (TTCT). Descriptive and inferential statistical analyses were conducted on the data. The findings indicated that, except for verbal fluency and certain verbal dimensions of creative thinking, students' performance and creativity significantly improved after learning in the visually interactive environment. However, no significant correlation was found between different domains of creative thinking (figurative and verbal) and performance. The study's implications suggest that learners effectively adapt to interactive visual tools to enhance comprehension, also positively influences learners' creative capabilities, indicating the efficacy of integrating visual interactive tools in educational settings. This study contributes to the growing body of research on educational technology and creative pedagogy, providing insights for educators and policymakers on effective strategies to enhance creativity and performance in higher education.

A Novel Expert System Framework for Assessing Loan Application Qualifications in Banking Customers

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ABSTRACT

The COVID-19 pandemic has intensified economic challenges globally, leading to a surge in loan applications from individuals and businesses. Traditional banking systems often struggle to manage this increased demand efficiently, resulting in delays and potential human errors in loan evaluations. This paper introduces a novel expert system framework designed to enhance the evaluation process of loan applications within financial institutions. By integrating data science techniques and expert systems, the proposed model aims to streamline processing times and minimize errors, thereby improving both customer satisfaction and organizational efficiency. Influencing factors for loan qualification were identified through expert consultations, followed by the development and deployment of a 5-point Likert scale questionnaire. Empirical results indicate significant reductions in processing time and error rates, affirming the system's potential to enhance the overall customer experience.

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