



AicE-Bs2026Sokcho

14th Asia-Pacific International Conference
on Environment-Behaviour Studies

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Kyungdong University Global (KDU Global),
Sokcho (Goseong), South Korea
04-06 Jun 2026

AMER Association of Malaysian
Environment-Behaviour Researchers (Est. 2012)



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14th Asia-Pacific International Conference on Environment-Behaviour Studies

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Editor

Mohamed Yusoff Abbas

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The organiser, Association of Malaysian Environment-Behaviour Researchers (AMER), The organiser, Association of Malaysian Environment-Behaviour Researchers (AMER), together with the host KDU Global Research Center, Kyungdong University Global (KDU Global), Sokcho, South Korea in collaboration with Kulliyah of Sustainable Tourism and Contemporary Languages, International Islamic University Malaysia, wishes to extend their gratitude to all the Abstract contributors for making this publication possible,

Thank you all !

Foreword

This 14th Asia-Pacific International Conference on Environment-Behaviour Studies, AicE-Bs2026, being held at the Kyungdong University Global (KDU Global), Sokcho, South Korea, from 04-06 Jun 2026, which is fully managed by AMER's subsidiary, emAs (AMER Event Management & Services) under emAs emAs Resources, marks AMER's 54th international conference to be organised,

The Game Changer 2021 (#GC2021), initiated in early 2021, requires that contributions from Malaysia include international co-authors and aims to increase the number of publications contributed by multinational authors. We believe that the initiative would significantly increase the likelihood that our publications will be indexed by more reputable indexing bodies, such as Scopus. As such, commencing in 2021, only multinational-authored contributions from Malaysia will be accepted for publication.

As anticipated, the new Clarivate Analytics ruling for publications commencing Jan 2026, which would not be automatically WoS-indexed as in previous years, has significantly reduced the number of participants. Nevertheless, AcE-Bs2026Sokcho, still managed to attract a total of 44 approved abstracts, with authors from 16 countries. The majority of the abstracts were in collaboration with Malaysian authors (26 numbers). International contributions were obtained from South Korea (18), Indonesia (9), China (6), Morocco and Uzbekistan (2 each), and one each from Brunei, Canada, France, India, New Zealand, Pakistan, Philippines, Thailand, Türkiye and United Kingdom.

The approved abstracts were grouped into 16 subcategories, although many could have been easily placed under more than one category. The top four categories, in order of popularity, were Artificial Intelligence Environment (22.2%), Tourism / Hospitality Environment (13.3%), Health / Healing Environment (11.1%), Sustainable Environment and Technology-related Environment (8.9% each).

Hopefully, this conference will inspire and encourage more researchers to participate in our forthcoming serial conferences.

Thanks again for your continuous support and contributions, as always, and hope for an enlightening conference!

Looking forward.

Mohamed Yusoff Abbas, PhD.

Chair

AicE-Bs2026Sokcho, 04-06 Jun 2026

confchair@amerabra.org

About AicE-Bs

Background

The M1iCES (Malaysia's 1st International Conference on Environment-Behaviour Studies) officially soft-launched by Malaysian Director General, Womens Development Department, Ministry of Women, Family and Community Development during 1nCEBS (14-15 November 2009) had been renamed the ASIA Pacific International Conference on Environment-Behaviour Studies (AicE-Bs). AicE-Bs conference themes address Environment-Behaviour issues affecting the Asia/Pacific region. In particular, on issues affecting the Asian communities living in both Asian and non-Asian countries. Issues affecting non-Asian communities are also most welcome.

Prior to 2014, AicE-Bs were organised annually by cE-Bs in collaboration with ABRA (Association of Behavioural Researchers on Asians.Africans/Arabians) / AMER (Association of Malaysian Environment-Behaviour Researchers) and non-ASEAN ajE-Bs / jABs Editorial Board member's establishment (as the National Conference now renamed Asian Conference on Environment-Behaviour Studies – AcE-Bs shall be held in Asian members' countries). Post 2014, all AicE-Bs conferences shall be organised in non-Asian countries, except Malaysia. It shall be fully managed by emAs (AMER Event Management Services), under emAs emAs Resources.

To date, the AicE-Bs conferences organised are as follows:-

- 1st AicE-Bs2010Kuching, Malaysia, 07-09 Dec 2010
- 2nd AicE-Bs2011Famagusta, North Cyprus, 07-09 Dec 2011
- 3rd AicE-Bs2012Cairo, Egypt, 31 Oct-02 Nov 2012
- 4th AicE-Bs2013London, United Kingdom, 04-06 Sep 2013
- 5th AicE-Bs2014Berlin, Germany, 24 – 26 Feb 2014
- 6th AicE-Bs2015Bacelona, Spain, 31 Aug – 05 Sep 2015
- 7th AicE-Bs2016Edinburgh, Scotland, UK, 27-30 Jul 2016
- 8th AicE-Bs2018Sheffield, UK, 14-15 Jul 2018
- 9th AicE-Bs2019Lisbon, Portugal, 03-04 Jul 2019
- 10th AicE-Bs2022KotaKinabalu, Malaysia, 07-08 Sep 2022
- 11th AicE-Bs2023Marrakech, Morocco 01-07 Mar 2023
- 12th AicE-Bs2024Bandung, Indonesia, 04-05 Oct 2024
- 13th AicE-Bs2025London, UK, 29-31 Aug 2025

14th Asia-Pacific International Conference on Environment-Behaviour Studies, Kyungdong University Global (KDU Global), Sokcho, South Korea, 04-06 Jun 2026

The conference focuses on current Environment-Behaviour issues affecting the Asian/African/Arabian communities in both their countries and others. Issues affecting other communities are also most welcomed.

Paper presenters are allowed to either present On-site (F2F) or virtually. However, only those who present F2F shall be in the running for the Best Paper awards.

The e-IPH, UK published both the Abstract Book (eISBN 978-1-913576-23-3), and the Proceeding in the E-BPJ (Environment-Behaviour Proceedings Journal), eISSN 2398-4287, 11(37) Jun 2026, issue. Upon the final publication, it will be sent to Clarivate Analytics for possible WoS-indexing.

Extended versions of the selected papers shall be published as freely accessible articles, online, in our other international journals –ajE-Bs or jABs, @ no publication charges.

Conference Tracks

Paper contributions involved the following environments (though not exhaustive): -

Artificial Intelligence Environment
Big Data Environment
Children / Youth Environment
Climatic Environment
Commercial/Retail/Services Environment
Communication / Social Media Environment
Community Environment
Construction Environment
Design / Creative Environment
Educational / Learning Environment
Elderly Environment
Energy Environment
Financial Matters
Gender Issue
General Psychology
Governance Environment
Health / Healing Environment
Human Resources Environment
Inclusive / Less Able Environment
Information & Communications Technology Environment
Landscaping Environment
Legal Matters
Leisure / Recreational / Sports Environment
Local Heritage Environment
Management / Production Environment
Natural Environment
Policy Matters
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Residential Environment
Rural Environment
Security Environment
Sustainable Environment
Technology-related Environment
Tourism / Hospitality Environment
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Artificial Intelligence Environment

A 01
AIE 006

A Scientometric Analysis of Spiritual Well-being in the Age of Artificial Intelligence

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Abstract

As AI increasingly becomes an intermediary in human life, its relationship to spiritual well-being needs to be understood more deeply, as it affects not only technical aspects but also ways of thinking, the formation of meaning in life, and the balance of the soul. Reliance on AI has the potential to impair the ability to reflect and spiritual awareness if not properly controlled. Therefore, a balanced approach is needed to ensure that AI functions as a tool that supports spiritual development, rather than replacing humans in the pursuit of peace and meaning in life. To address this concern, this bibliometric review maps global studies of how artificial intelligence impacts spiritual well-being. The scientometric analysis of 182 peer-reviewed articles published between 2016 and 2025 revealed a steady annual increase in the number of articles addressing the impact of AI on spiritual well-being. In terms of countries with the most publications, the United States ranked first. Bibliometric analysis reveals that spirituality, artificial intelligence (AI), and health are key pillars of current discussions, alongside the topics of indigenous well-being, youth, cancer treatment, as well as culturally responsive intervention strategies. Observations of citation patterns prove that the majority of research is

now centred on holistic and community health models, despite the increasing interest in AI-based methodologies and digital platforms. However, there is a significant imbalance as existing studies focus more on the clinical and psychosocial dimensions, thus ignoring the deep integration between spirituality and technological theory. This situation reveals critical academic gaps in cross-cultural perspectives as well as empirical studies of spiritual experiences facilitated by artificial intelligence. Overall, this review maps the intellectual landscape of this field and proposes an interdisciplinary research agenda to strengthen spiritual resilience in the modern technological age. The implications of this study are significant as they provide a comprehensive theoretical framework for policymakers and researchers to systematically incorporate spiritual values into technological design, thus ensuring that human well-being continues to be preserved amidst the rapid wave of digitalization.

Keywords: Scientometric; Spirituality; Well-being; Artificial Intelligence

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A 02 AIE 010

AI-Driven Urban Energy Optimization in Emerging Megacities: Addressing scalability, lifecycle impacts, and socio-technical gaps

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Abstract

Rapid urbanization and climate change severely strain energy and waste management systems, positioning Artificial Intelligence (AI) and cloud computing as transformative tools for smart city sustainability. Despite AI's potential, significant research and implementation gaps persist, particularly in climate-vulnerable and resource-constrained urban environments. Existing optimization models predominantly target data-rich, developed nations, often failing to address infrastructural limitations, grid instability, and heterogeneous waste profiles such as high-moisture organic waste. Furthermore, current literature frequently prioritizes short-term operational efficiency while overlooking the substantial energy consumption and carbon footprint associated with training and deploying complex AI models. There is also a pronounced deficit in comprehensive Life Cycle Assessments (LCA) and frameworks addressing socio-economic barriers, including policy fragmentation, informal sector labor displacement, and algorithmic bias. This study aims to investigate the effectiveness of an integrated, socio-technical framework for AI-driven urban energy and Waste-to-Energy (WtE) optimization

tailored to developing smart cities. The objectives are to identify context-aware AI solutions, establish energy-efficient computational models, and determine the feasibility of sustainable WtE integration in low-resource settings. The research adopts a mixed-methods approach, combining simulation-based modeling and secondary data analysis, with a representative dataset of urban energy consumption and waste generation patterns. Machine learning techniques, including Gradient Boosting for residential load forecasting, Long Short-Term Memory (LSTM), and Reinforcement Learning (RL) for smart grid optimization, as well as predictive analytics for WtE process control, are evaluated.

However, limitations include reliance on simulated datasets, limited real-world deployment, and potential variability in data availability across regions. The findings suggest that modular, context-aware AI architectures combined with Green AI techniques—such as model compression, neuromorphic computing, and carbon-aware scheduling—can reduce computational energy consumption by up to 45% with minimal loss in accuracy.

The study highlights the importance of integrating technical innovation with inclusive governance and policy frameworks. It implies that adopting scalable, energy-efficient AI systems can enhance urban energy security, support circular economy transitions, and strengthen climate adaptation strategies in developing cities.

Keywords: Artificial Intelligence; Smart Cities; Waste-to-Energy; Green AI

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A 03
AIE 009

**AI-powered University Student Support Chatbot
using AWS Serverless Technologies and
Claude AI**

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Abstract

Artificial Intelligence has boosted the adoption of chatbot systems across higher education, yet many current chatbots still face significant limitations. Existing systems provide shallow or generic responses, struggle with informal or vague student language, fail to maintain context across multi-turn conversations, and function as FAQ tools without integration into real university services. Many also lack scalability and the ability to support multiple administrative domains within a single platform. These flaws reduce reliability and limit their usefulness in real student environments where inquiries are diverse, urgent, and most of the time complex.

To address these challenges instantly, this research aims to design, develop, and evaluate a cloud-native conversational chatbot built on an architecture designed for real-time intelligence. A web frontend routes student messages through API Gateway into Amazon Lex V2, where intents are recognized before being processed by AWS Lambda. Lambda acts as the system's logic, retrieving data from DynamoDB for students' records, fees, and appointments while optimizing Claude Sonnet 4.5 for deeper semantic understanding. Additional integrations like

Amazon SES and external APIs extend the chatbot's functionality, making the system adaptive and responsive to support across the university's digital ecosystem.

The chatbot supports more than ten major university service areas, including tuition inquiries, academic advising scheduling, visa guidance, dormitory information, GPA Calculation, mental health resources, health and car insurance policies, and part-time job guidance. Functional evaluation was conducted using 63 test cases covering simple queries, informal language, typing errors, vague requests, and multi-turn conversations. Testing results showed strong intent recognition, accurate data retrieval, effective handling of informal inputs, and reliable multi-turn conversation performance.

Although future improvement is needed in multilingual support and handling of highly unstructured messages, the prototype illustrates a compelling direction for higher education. It shows how intelligent conversation delivered instantly, clearly, and empathetically can transform the student support experience, reduce administrative strain, and bring institutions closer to the students they serve.

Keywords: Chatbot; Amazon Lex V2; Artificial Intelligence; Higher Education

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A 04 AIE 002

ChatGPT and the Shaping of Literary, Cultural, and Media Discourses

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Abstract

Scholars, critics, and media institutions have long shaped cultural and literary canons by selecting, interpreting, and circulating knowledge. In the digital era, tools such as ChatGPT increasingly participate in this process, raising important questions about their role in structuring discourse within literature, culture, and media studies. The significance of this research lies in examining how such tools may influence the transmission of knowledge and the visibility of certain authors, theories, and perspectives in the human sciences. This study aims to explore how ChatGPT shapes cultural, literary, and media discourse. More specifically, it seeks to identify whether the model reinforces dominant canonical references or integrates more diverse perspectives, and to determine how language (English versus French) shapes the production and framing of these discourses. The research adopts a qualitative comparative approach. A corpus of ten questions was submitted to ChatGPT (GPT-4 paid version) in both English and French. The questions address three main areas: postcolonial literature, feminist theory, and media and cultural criticism. The analysis is conducted manually using a qualitative grid focusing on lexical and semantic choices, suggested references (authors,

works, and theories), and the interpretative angles privileged in each response. The findings reveal that ChatGPT's responses vary significantly depending on the language used. The English responses tend to provide more theoretically grounded and conceptually precise analyses, while the French responses are generally more descriptive and simplified. In terms of references, the English outputs privilege Anglophone canonical figures, whereas the French outputs introduce more linguistically diverse references but with less theoretical depth. Overall, the results suggest the presence of an implicit hierarchy of knowledge influenced by dominant academic and cultural canons. This study is limited by its small sample size and its focus on only two languages. Nevertheless, it highlights the role of ChatGPT as a mediator of knowledge in the humanities, capable of shaping literary and cultural narratives. It also suggests the need for a critical use of generative technologies in education and research, and opens perspectives for further studies on linguistic and cultural biases in AI-generated discourse.

Keywords: ChatGPT, Artificial Intelligence, Cultural Studies, Media, Literary Discourse

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A 05
AIE 008

Deep Fake Technology in Media: A literature review

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Abstract

Deepfakes have become possible through advances in artificial intelligence, particularly deep learning architectures. These technologies enable the creation of highly realistic audio, video, and imagery using the algorithms capable of imitating the appearance of a person or an object. In general, deepfakes are a technique that uses machine learning to synthesize and manipulate images, videos, and audio. They mainly rely on deep learning models, specifically generative adversarial networks (GANs). This model is based on the process when two neural networks compete and learn how to generate realistic results.

The main goal of this paper is to present an analysis of deepfake technology, focusing on its history and the key mechanisms used to produce deepfakes. In particular, this paper will focus on neural network training and discuss how recent advances in this field have made deepfakes even more realistic. As a result, the emergence of deepfakes poses serious challenges for information verification.

Unfortunately, the use of deepfake technologies in modern society is becoming increasingly common. Deepfakes create various opportunities for misuse as they can be used to create fakes in order to commit criminal acts, including fraud,

election tampering, identity theft, extortion, defamation, terrorism, and so on. All these activities make information verification extremely important since the rise of fake news is increasing continuously.

There are various measures implemented in order to mitigate negative effects related to deepfake technology. In addition to the application of machine learning methods, there are various regulations and laws governing the activities of people working with deepfakes.

Furthermore, online services apply various content moderation techniques to prevent people from using deepfake technology illegally.

Some of the emerging methods of preventing and detecting deepfakes include digital watermarking and forensic analysis. There are several methods for detecting fake images and analyzing the content of images and videos. Finally, another promising strategy is public awareness campaigns that inform users about deepfakes.

Keywords: Diffusion Models; Deepfake technology; Artificial intelligence; Identity theft; AI ethics

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A 06
AIE 001

Environmental Awareness and Perceived Responsibility Regarding Generative AI

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Abstract

In recent years, Generative AI (GenAI) has become an integral part of student life. The growing use of GenAI demands a large quantity of resources, e.g., fresh water, electricity, and rare earth metals. This study aims to identify the primary use case for GenAI among undergraduate students at Kyungdong University Global, as well as their awareness of its environmental impact and perceived responsibility. To this end, we examined the interconnections between usage frequency, awareness, responsibility attitude, and readiness to reduce AI use. Students (N = 316) were surveyed using a 5-point Likert scale to assess the main use case, awareness, responsibility, and difficulty reducing AI usage. We processed and analyzed the data using the Python Programming Language, with NumPy and Pandas for data manipulation and SciPy for statistical testing. We also utilized scikit-learn for modeling, while Matplotlib for visualization. First, we calculated the mean and standard deviation of the responses to each questionnaire. Then, we classified the responses into seven distinct categories: Total AI Usage Score (TUS), Average AI Usage Score (AUS), Number of GenAI Use Categories (AUC), General Environmental Concern Score (GCS), GenAI Environmental Awareness Score

(AAS), Responsible AI Attitude Score (RAS), and AI Reduction Feasibility Score (RFS). The AUC values showed limited variation since students selected only one primary use category. Therefore, it was not useful for explaining differences in AAS and RAS. The majority of students had a moderate to high level of awareness regarding the environmental impact of GenAI (57.3% highly aware). We examined two regression models for AAS and RAS. The first regression suggested that AAS is associated with both TUS ($\beta = 0.139$, $p = 0.004$) and GCS ($\beta = 0.138$, $p = 0.001$). The second regression indicated that RAS had a statistically significant association with AAS ($\beta = 0.211$, $p < 0.001$) and GCS ($\beta = 0.207$, $p < 0.001$). Spearman correlation further revealed that TUS was positively associated with AAS ($\rho = 0.202$, $p < 0.001$) and RAS ($\rho = 0.126$, $p < 0.05$), but negatively associated with RFS ($\rho = -0.148$, $p < 0.01$). The analysis showed that the students who use GenAI frequently are more aware of its environmental impact but find it hard to stop using it. Additionally, the results show that simply having environmental awareness is insufficient; students require alternative solutions to address this issue.

Keywords: Generative AI; Sustainable AI; AI Environmental Impact; Environmental Knowledge and Awareness

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A 07
AIE 005

Impact of Generative AI on Undergraduate Students: A case study of KDU Global

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Abstract

The rapid advancement in Generative AI (GenAI) tools has changed higher education, mainly in how undergraduate students use various AI tools such as ChatGPT, Claude AI, etc., and many others for educational objectives. These tools help students learn efficiently with a greater understanding of programming and technical concepts. However, overreliance on such tools leads to serious concerns about students' critical thinking and problem-solving skills. The main focus of this research is to show the behavioral impact of using GenAI tools among undergraduate students in the Smart Computing department at Kyungdong University Global in Goseong-gun, South Korea. This research aims to define the effects of such tools on students' learning behavior in educational practices. It tells the purpose and frequency of GenAI usage, identifies its impact on learning habits, and shows students' awareness of the challenges and consequences for problem-solving and independent thinking. A quantitative research approach was used to get data from 160 students via a Google form through the cross-sectional survey method. The survey included questions regarding awareness of AI tools, AI usage in learning behavior, non-users' perceptions, and awareness of AI tools associated

with learning practice. The acquired data were evaluated using detailed statistical tools. The outcome shows that most of the students daily use GenAI tools for academic purposes, especially for assistance with coding, debugging, and problem-solving. The results demonstrate that these tools enhance learning efficiency, quality of assignments and project tasks, improve understanding of programming and technical concepts, and increase efficiency in completing academic tasks. But, issues regarding overreliance on AI tools, reduced development of independent and problem-solving skills, and inaccuracy or inconsistency in AI-generated answers were also observed. Diversities in usage patterns were noted among various student groups. The research is conducted through convenience sampling, and it is concentrated on a single department, which could affect the generalizability of the findings. However, the research gives a crucial perspective for educational organizations in creating balanced approaches to incorporating GenAI into education and learning behavior. It emphasizes the need to encourage ethical use of AI while maintaining important cognitive and problem-solving abilities.

Keywords: Generative AI; Undergraduate Students; Learning Behavior; AI Tools

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A 08
AIE 004

Memory-Efficient Diffusion Image Generation: A hybrid framework for low-resource environments

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Abstract

Stable Diffusion and SDXL-Turbo have become the state-of-the-art text-to-image models in the modern era. However, their effectiveness is highly dependent on the timing, sampling, and computing resources. The majority of previous studies evaluate these models on the latest GPUs and high end resources, leaving out CPU or free-tier services.

This thesis bridges this gap by providing a comprehensive analysis and optimization approach for low-resource computational environments.

The paper presents two popular diffusion models: Stable Diffusion 1.5 and SDXL-Turbo. The framework combines systematic parameter sweeps, structural prompt engineering, perceptual similarity assessment using LPIPS, and hybrid inference pipelines to optimize generation quality with minimal hardware. The experiments were all run entirely on CPUs and in free-tier cloud environments, with explicit memory-optimized model-loading policies to enable their execution within the tight computational constraints.

The pipeline starts with an experimental baseline image generation pipeline using Stable Diffusion 1.5, due to its high structural consistency and its ability to work well in low-resource environments. The results of images generated during this phase are run through SDXL-Turbo via an img2img refinement process, creating a two-stage hybrid generation pipeline (SD1.5 → SDXL-Turbo). Quantitative analysis of LPIPS shows that the method significantly increases the perceptual similarity with the baseline images. The two-stage pipeline scores 0.3716 on LPIPS, which is much better than SDXL-Turbo alone, which scores 0.6743. It suggests that SD1.5 offers consistent compositional stability, and SDXL-Turbo is effective in increasing fine-grained textures and detail.

Besides the hybrid pipeline, a lightweight pixel-average ensemble approach was also tested to explore the idea of whether the results of the various diffusion runs can be used to further enhance the image quality. The ensemble outputs seemed to be visually smoother; however, quantitative LPIPS results indicated that there was greater perceptual divergence compared to the baseline images, which is consistent with the previously reported findings on ensemble diffusion strategies. Overall, this thesis introduces a reproducible hardware-efficient diffusion model evaluation and optimization framework that can be employed in constrained environments. The work presents practical advice to researchers and developers who have to work with limited computational resources by showing that it is possible to create high-quality generation and reliable quantitative evaluation without the use of high-end GPUs.

Keywords: Diffusion Models; Text-to-Image Generation; Low-Resource AI; Image Generation Optimization

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A 09 AIE 003

Physical Learning Environments and AI-Powered Personalized Learning in Higher Education: A systematic literature review

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Abstract

Personalized learning systems with artificial intelligence (such as adaptive learning platforms, intelligent tutoring, and AI-based assessments) often show strong results in rigorous research. In fact, in these situations, they improve upon normal teaching by between 0.42 and 0.76 standard deviations. However, when universities actually use them, they do not perform nearly as well as the research suggests. Most of what has been written about this difference says it is due to a lack of the right technology or to teachers not being prepared for it. However, it misses something we know affects how people think: the physical space where learning happens. This paper asks whether the quality of a physical learning environment affects the effectiveness of AI-powered personalized learning in universities.

This study conducted a thorough review of 39 studies that had been properly assessed by other experts and analyzed those studies. These came from AI in education research from 2006 to 2026, and from studies of how environments and behavior link to learning spaces, from 1999 to 2024. They found these resources on IEEE Xplore, Springer, Elsevier, MDPI, and Frontiers. The studies were selected to answer three questions: what parts of a physical environment affect how focused

students are in their thinking? How do these parts of the environment connect to what adaptive AI systems need people to do to make the personalization work? Moreover, could the environment possibly explain why adaptive learning performs so much better in a lab than in a real university? The main limitation is that almost no existing studies measure both physical environment quality and AI tool performance in the same setting, which means the relationship cannot yet be tested directly.

Thermal discomfort (being too hot or cold), insufficient natural light, and noise frequently reduce students' ability to pay attention and control their own learning. Adaptive AI systems rely on students being able to do those things for personalization to be useful. Barrett and colleagues (2015) found that physical classroom factors alone account for 16% of the variation in student academic outcomes, a figure directly comparable to the effect sizes reported for AI adaptive learning systems. What is important is that when AI learning tools are used in research, they are mostly in carefully designed and managed spaces, which most universities do not have.

These results mean that how good the physical learning environment is is not something minor. It is actually essential for AI to improve education. Designing learning spaces and introducing AI systems should be done together as a single decision by the university, not as two completely separate plans.

Keywords: Adaptive learning; Environment-behaviour; Higher education; Physical learning environment

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Children / Youth Environment

A 10 CYE 002

Preliminary Study on Nutritional Status and Total Iron Binding Capacity (TIBC) Levels in Adolescents

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Abstract

Background: Adolescent girls are at high risk of iron deficiency due to rapid growth, hormonal changes, and menstrual blood loss during puberty. These physiological demands increase the need for iron, making this group especially vulnerable to anemia. Hemoglobin testing is often used to detect anemia. However, it may not detect iron deficiency in its early stages. Total iron-binding capacity (TIBC) is a useful biochemical marker of iron metabolism and can indicate early iron depletion. **Objective:** This study aimed to assess the nutritional status of adolescent girls, evaluate TIBC as an early indicator of iron deficiency, and explore the association between Body Mass Index (BMI) and TIBC. **Methods:** A descriptive-correlational study was conducted involving 21 adolescent girls from SMK Baitul Hikmah in Jember, Indonesia, selected through purposive sampling. Nutritional status was

assessed using BMI and dietary intake via the Food Frequency Questionnaire (FFQ). Hemoglobin and TIBC levels were measured through blood tests. Data were analysed using Fisher's Exact Test, with significance set at $p < 0.05$. Results: The majority of participants were underweight (66.7%) and had poor dietary intake (47.6%). Anemia was found in 42.9% of participants, and 28.5% had abnormal TIBC levels. A significant association was found between BMI and TIBC. Conclusion: This preliminary study highlights the potential association between poor nutritional status and elevated TIBC in adolescent girls. The findings emphasize the need for regular nutritional monitoring and early screening using biochemical markers to prevent iron-deficiency anaemia. Limitations: This study has several limitations, including a small sample size and the use of purposive sampling, which may limit the generalizability of the findings. Additionally, the cross-sectional design restricts the ability to establish causal relationships between BMI and TIBC levels. Dietary assessment using FFQ may also be subject to recall bias. Implications: Despite these limitations, the findings suggest that TIBC may serve as a valuable early indicator of iron deficiency among adolescent girls. Integrating nutritional assessment and biochemical screening into school-based health programs could enhance early detection and prevention strategies. Further studies with larger sample sizes and longitudinal designs are recommended to strengthen the evidence base and inform public health interventions.

Keywords: Adolescent Girls; Anemia; Iron Deficiency; TIBC

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A 11 CYE 001

Volunteer Motivation and Participation Intention among Adolescents in Anhui, China

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Abstract

Volunteer service has become an increasingly important component of youth civic engagement in China, yet sustained participation remains varied across age groups, cities, and regions. In Anhui Province, despite increasing policy support and public awareness, NGOs face challenges in continued adolescent volunteer participation. It impedes the continuity of volunteer programmes that impact sustainable cities and communities. Understanding the psychological factors that shape adolescents' willingness to participate in volunteer service is therefore of both theoretical and practical significance. This study aimed to examine the relationship between adolescents' motivation to volunteer and intention to volunteer. The objectives were to (i) determine the levels of motivation and intention to volunteer, (ii) examine if there is a significant difference between the male and female adolescents' intention and motivation to volunteer, and (iii) examine if there is a significant relationship between participation motivation and intention. This study employed a quantitative method using a structured questionnaire to gather data from 353 adolescents aged 12 to 19 in Anhui Province. Volunteer motivation was measured using three of the six dimensions of the Volunteer Functions Inventory developed by Clary et al. (1998), namely values, understanding, and social motivation. Volunteer participation intention was measured using five adapted items based on Ajzen's (1991) behavioural intention construct. The SPSS

software was used to analyse the data. The results show that adolescents generally reported high levels of both motivation and intention to volunteer, and there is a significant relationship between motivation and intention. However, although there is a significant difference between male and female adolescents' motivation and intention to volunteer, there is no significant difference in terms of learning knowledge and enhancing personal abilities through volunteer activities.

This study is limited by its regional focus, self-reported data, three of the six dimensions, and the adolescent age group. Nevertheless, the findings offer useful implications for volunteer organizations, schools, and policymakers. Strengthening opportunities for learning, personal growth, and social connectedness in volunteer programmes may enhance adolescent engagement and support the long-term sustainability of volunteer participation, in line with SDG 11 on sustainable cities and communities.

Keywords: Volunteer Motivation; Participation Intention; Adolescents; SDG 11

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Commercial/Retail/Services Environment

A 12 CRSE 002

Beyond Price Advantage: Shopping experience and value perception in a Malaysian duty-free island

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Abstract

Shopping tourism has evolved from a complementary travel activity into a key driver of destination competitiveness, particularly in duty-free island contexts where price advantage intersects with experiential value. This study examines the shopping behaviour and experiential perceptions of domestic tourists visiting Langkawi Island, one of Malaysia's most prominent duty-free destinations. A qualitative research approach was adopted, with semi-structured interviews conducted among fifteen tourists at the Kuala Perlis and Kuala Kedah jetties. The data were analysed using thematic analysis to explore their purchasing patterns, motivations, and overall shopping experiences in depth. The findings reveal that domestic tourists are primarily motivated by the affordability of duty-free goods, particularly chocolates, apparel, kitchenware, and fragrances, reflecting strong utilitarian value considerations associated with price savings and product accessibility. However,

beyond these economic benefits, shopping experiences are significantly shaped by hedonic factors, including enjoyment, excitement, and the integration of leisure and retail activities within the destination. Tourists reported high levels of satisfaction, emphasising convenience, accessibility, and product variety as key contributors to their positive experiences, alongside the relaxed island atmosphere that enhances overall enjoyment. The study further identifies three key dimensions influencing shopping tourism behaviour: product availability, price attractiveness, and supporting facilities and services, which collectively shape tourists' overall experience and influence their intention to revisit and recommend the destination to others. From a tourism development perspective, the findings highlight the importance of positioning shopping not merely as a transactional activity but as a holistic and experience-oriented offering that enhances destination appeal and competitiveness. The study contributes to the growing discourse on shopping tourism by integrating utilitarian and hedonic value perspectives in understanding tourist behaviour within a duty-free destination context, while also offering practical implications for destination marketers, policymakers, and retail operators to strengthen value-driven strategies and enhance retail experiences. Future research is recommended to adopt comparative and mixed method approaches to further examine evolving shopping tourism trends across different destinations and tourist segments.

Keywords: Shopping tourism; Tourist experience; Value perception; Duty-free destination

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A 13 CRSE 001

Home-Based Food Businesses Food Safety: Expert review approach and cvi analysis

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Abstract

Background, Significance, Aim: Home-based food businesses (HBFBs) play an important role in Malaysia's economy by providing low cost food for the market. But it often lacks standardized tools to assess food safety practices at its premises and its production. This study aimed to develop and validate questionnaires focused on food safety practices among HBFBs in Pahang, Malaysia.

Objectives: Content validation was conducted through expert review to confirm relevancy, clarity and suitability of each item.

Methods: The content validity of structured questionnaires established by using content validity index (CVI), scale content validity index (S-CVI), probability of chance agreement (Pc) and kappa (k*). 73 items were listed in a dedicated table and provided with a recommendation column for expert feedback. A panel of seven experts were selected based on their expertise in Malaysia food safety standards

provided with a clear instruction to evaluate the questionnaire using a 4-point relevance scale. The CVI was calculated per item and scale levels in excel based on CVI formula where total score of 1 and 0 calculated and divided with seven experts. Item CVI (I-CVI) ≥ 0.78 is acceptable without modification, 0.70-0.77 needs revision and <0.70 interpreted as poor. Next step S-CVI, Pc and k^* computed. S-CVI > 0.8 is good. Interpretation for modified kappa; > 0.74 (excellent), 0.60-0.74 (good), 0.40-0.59 (fair), <0.40 (poor).

Limitations, Findings, Implications: CVI results for relevancy; 0.43 (1 item), 0.57 (4 items), 0.71 (12 items), 0.86 (22 items) and 1.00 (34 items). CVI for clarity; 0.57 (1 item), 0.71 (15 items), 0.86 (21 items) and 1.00 (36 items). CVI for suitability; 0.57 (5 items), 0.71 (10 items), 0.86 (22 items) and 1.00 (36 items). Modified kappa results for relevancy; 56 items (excellent), 12 items (good), 4 items (fair), and 1 item (poor). k^* results for clarity; 57 items (excellent), 15 items (good) and 1 item (fair). k^* results for suitability; 57 items (excellent), 13 items (good), and 3 items (fair). Items of poor result removed from the questionnaire. Fair and good results retained and revised to suit our respondents based on expert review feedback. While excellent results retained without modification. The findings indicated that most items achieved acceptable validity, with necessary modifications made based on expert response will lead to a good questionnaire. Validated items considered suitable for further field testing or pilot study

Keywords: Content validity; expert review; home-based food business; food safety CVI

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Communication / Social Media Environment

A 14 CSME 001

Hip-Hop Music in Enhancing Communication among Young Adults: A literature review

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Abstract

Background: Hip-Hop music gained global popularity due to its lyrical storytelling, emotional expression, and linguistic creativity. Moreover, communication skills are important to have, especially among young adults. Existing literature from past research suggested that music can shape communication behavior, vocabulary development, and self-expression. However, limited studies have examined on how impactful hip-hop music lyrics is for oral communication skills among young adults within the Malaysian educational context. **Significance:** The literature review contributes to communication and media studies by emphasizing how Hip-hop music can function as an informal learning resource capable of strengthening verbal confidence, communication, and expressive ability among young adults. **Aim:** To investigate the development of oral communication skills from Hip-hop lyrics among young adults. **Objectives:** This literature review wants to identify the role and impact of hip-hop music lyrics on oral communication skills among young adults

while analyzing gender as a mediating variable within media and communication relationships. Furthermore, the review identifies theoretical perspectives, empirical findings, and research gaps relevant to the study. **Methods:** Literature from Google Scholar and ResearchGate website was reviewed, with past research backdated from 2019 until 2026, using keywords: Hip-Hop Music Lyrics, Youth Communication. English peer-reviewed sources, including books, journal articles, and quantitative studies on hip-hop music, media influence, communication development, and gender differences, were analyzed using theories, involving samples of 100–1,000 respondents. **Findings:** Previous studies showed that constant engagement with lyrical content can influence communication styles, confidence, and expressive fluency among young listeners. Furthermore, the findings suggested that gender differences may affect how Hip-Hop music is interpreted and how communication behaviors are developed through media consumption. **Implications:** The potential of hip-hop music as an educational tool that may support communication development among young adults. Hence, also provides a theoretical and empirical foundation for examining gender as a mediating variable between media and communication relationships. **Limitations:** Existing studies focused more on Western populations, with limited attention given to Malaysian non-urban educational context. Moreover, previous research often examines music influence broadly without specifically focusing on oral communication skills and gender mediation. **Discussion:** Reviews from past studies suggested that communication skills can be developed through cultural and media exposure beyond formal classroom learning. **Conclusion & Recommendations:** Overall, literature from past research shows a relationship between hip-hop lyrics and communication development. Future research should focus more on Malaysian educational contexts, broader demographic groups, and deeper examination of gender mediation within communication studies among young adults today.

Keywords: Hip-Hop Music Lyrics, Oral Communication Skills, Youth Communication, Gender Mediation

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Design / Creative Environment

A 15 DCE 001

Re: DesignFutures: Systems thinking for resilient architecture and urban development

Space (16AN)

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A resilient built environment is vital in responding to the dynamic, emerging, and non-linear challenges posed by rapid urbanisation, climate change, and socio-economic inequalities. However, architecture and urban design practice and education in general are slow to adopt resilience principles and have been perpetuated by narrow, artefact-oriented perspectives: aesthetics, structural integrity, and material efficiency. On the other hand, resilience principles require a closer look at wider contexts to endure complex global challenges. This paper introduces Re:DesignFutures, an extension of the Strategic Speculative Futures Framework (SSFF), as a conceptual approach to embedding resilience principles in architecture and urban design. This paper explores how resilience principles drive the speculative capacity of architecture and urban design, and how Re:DesignFutures can facilitate this capacity in a structured manner. It theorises a systems-oriented resilience framework applicable to architecture and urban design, while critically interrogating dominant design paradigms and exposing structural and pedagogical constraints to the adoption of resilience principles. Consequently,

it attempts to articulate Re:DesignFutures as a conceptual model for enhancing adaptive capacity and critical design thinking. This study employs a qualitative, conceptual research approach to examine resilience theory in the built environment by critically reviewing existing concepts and manifestations. Dominant design paradigms are examined to identify structural and pedagogical gaps and constraints in the adoption of resilience principles. A conceptual synthesis articulates Re:DesignFutures as a framework for navigating the dynamic contextual considerations in the design process. Findings highlight a lack of structured mechanisms for navigating the breadth and depth of evolving contextual considerations in addressing global challenges when designing for future uncertainties. The iterative and systemic approach in Re:DesignFutures challenges the normative, reactionary tendencies of conventional design processes by providing multi-scalar avenues for interpreting, translating, and manipulating design challenges grounded in resilience principles. The Re:DesignFutures framework offers an analytical and exploratory methodology, along with action guidelines, for practitioners, educators, researchers, and students of architecture and urban design to create a built environment integral to resilient urban futures.

Keywords: Re:DesignFutures – Systems Thinking, Resilient Urban Futures, Architecture and Urban Design, Speculative Strategic Futures Framework (SSFF)

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Educational / Learning Environment

A 16 ELE 003

Child-Led Learning Framework for Developing Holistic Children

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Abstract

Outdoor child-led learning is gaining wider attention as an important approach in early childhood education due to its role in promoting children's holistic development, autonomy, and engagement. In Malaysia, this approach is aligned with the Kurikulum Prasekolah 2026 (KP2026), which emphasizes the need for flexible and natural learning environments to nurture young minds. However, its implementation remains inconsistent across preschools. Limited research has explored teachers' experiences in facilitating outdoor child-led learning within the Malaysian context. While this approach is significant, its implementation remains inconsistent across Malaysian preschools, and limited research has explored teachers' experiences in facilitating these environments. Therefore, this study proposes a framework to foster holistic development by directly exploring these experiences. The study aims to develop a child-led learning framework for holistic child development by exploring teachers' experiences in facilitating outdoor child-led learning in Malaysian preschools.

The objectives are to identify the challenges teachers encounter and to examine the strategies they use to support children's learning in outdoor child-led environments. A qualitative research design was used to gain an in-depth understanding of teachers' experiences. Data were collected through semi-structured interviews with 12 preschool teachers in the Klang Valley, Malaysia. The

data were analysed thematically using NVivo software. The findings revealed key challenges, including environmental constraints, resource limitations, safety and supervision concerns, curriculum and institutional pressures, and behavioural challenges. Despite these barriers, teachers demonstrated adaptive strategies such as intentional outdoor environment design, safety routines and behaviour modelling, scaffolding through open-ended questioning, and supportive teacher practices. These strategies highlight the creativity of educators in overcoming physical and systemic hurdles to maintain child autonomy.

A limitation of this study is its reliance on self-reported data rather than observational evidence. The implications of this study are for preschool administrators and teachers to translate the proposed framework into practical strategies for outdoor child-led learning, to provide quality education aligned with SDG4. By establishing a clearer connection between teacher agency and student freedom, this research provides a roadmap for schools to successfully transition toward the 2026 curriculum standards. It serves as a call to action for the education sector to better support teachers as they navigate the shift from traditional instruction to child-centric discovery.

Keywords: Child-Led Learning Framework; Holistic development; Preschool education; SDG 4.

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A 17
ELE 001

**Differentiated Adaptive Leadership: Motivation
model for higher education teachers' well-
being**

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Abstract

In China's managerialist higher education context, academics' wellbeing and professional motivation are critically affected by discrepancies in salary scales, excessive non-teaching tasks, and research-teaching-based evaluation. Existing leadership models, however, often adopt a one-size-fits-all leadership support system that fails to consider academics' motivational needs. The significance of this study, the proposed Differentiated Adaptive Leadership–Motivation Model, is to sustain the motivation and wellbeing of novice, mid-career, and senior academics. This study aimed to develop a Differentiated Adaptive Leadership–Motivation Model for sustainable teacher professional engagement across different career stages. The objectives are to explore the (i) novice, mid-career, and senior academic's types of motivation at the workplace, and (ii) types of educational leadership support rendered to academics. The research utilized a qualitative case study design. Semi-structured interviews were conducted with 21 academics, i.e., seven per career stage. The limitations of this study include sourcing participants from only one institution, focusing on only three career stages, and not considering other socio-economic background details, such as gender, academic titles, and years of service, which may thus limit generalizability.

Key findings reveal that novice, mid-career, and senior academics differ in the types of support they expect from their leader. Novice teachers primarily rely on motivational competence support from instructional leaders through structured mentoring and AI-enhanced feedback to build confidence and mastery of skills. Mid-career teachers tend to prioritize motivational relatedness from transformational leaders, deriving professional support via participation in professional learning communities and cross-departmental collaboration. Senior teachers thrive on autonomy from distributed leaders, valuing trust-based empowerment and freedom to initiate pedagogical innovations without bureaucratic approvals. The proposed Differentiated Adaptive Leadership–Motivation Model illustrates how the wellbeing of academics across different career stages is a dynamic product of need-supportive, career-stage-adapted leadership.

Implications include structured mentoring for novices, peer networks for mid-career faculty, and autonomy grants for seniors, reframing teacher wellbeing aligned with SDG3 as achievable within hierarchical systems through differentiated, psychologically attuned leadership.

Keywords: Educational Leadership, SDG3, Teacher Wellbeing, Differentiated Adaptive Leadership–Motivation Model

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A 18 ELE 002

KAM-C Model of Myopia Management for School-aged Children

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Abstract

Progressive myopia is a significant public health issue among primary school-aged children in Malaysia. Its increasing prevalence is closely linked to unhealthy behaviors, such as prolonged near work, excessive digital device use, and limited outdoor activity. These factors contribute to long-term risks, including high myopia and related ocular complications. Although effective, evidence-based interventions exist, their clinical adoption remains limited, highlighting a gap between research and practice. The significance of this study is to develop a model to enhance myopia control in clinical practice. This study used a qualitative approach; it examined behavioral factors and developed the Parental Awareness–Knowledge, Attitude, and Practice Integrated Model (KAM-C Model) to enhance clinical myopia management. The model translates parental perceptions into structured clinical decision-making, aiming to increase treatment uptake, adherence, and overall effectiveness. The objectives were to (i) assess awareness of myopia control strategies, (ii) evaluate parental knowledge, attitudes, and practices regarding myopia management, and (iii) propose a structured clinical model based on the KAM-C Model. A qualitative methodology was employed, utilizing semi-structured

interviews with parents (n=10) of children aged 6–12 years diagnosed with mild-to-moderate myopia (≤ -6.00 diopters). Data was processed utilizing NVivo software, and Braun and Clarke's six-phase thematic analysis was applied, theoretically underpinned by the Health Belief Model and the Theory of Planned Behavior. Thematic analysis yielded four primary domains: myopia perception, awareness of control strategies, decision-making determinants, and professional influence. Findings indicate that while parental comprehension of myopia is foundational, it remains largely constrained. Treatment decisions were predominantly driven by perceived safety profiles, followed by economic feasibility and convenience, with a marked reliance on optometric recommendations. These empirical insights directly informed the patient-care framework, which systematically integrates clinical assessment, patient education, risk communication, and shared decision-making into a standardized pathway. These findings inform the development of the KAM-C Model, which integrates clinical assessment, patient education, risk communication, and shared decision-making into a standardized and systematic process for myopia management. Adoption of this framework by eye care practitioners can standardize clinical protocols, optimize clinician-parent communication, and facilitate evidence-based myopia management. Ultimately, this framework supports improved long-term visual outcomes in children and aligns with Sustainable Development Goal (SDG) 11—specifically Targets 11.3 (inclusive urban development) and 11.7 (access to safe and supportive environments).

Keywords: Myopia Control; KAM-C Model; SDG 11; Sustainable Cities and Communities; Inclusive Urban Development; Safe and Supportive Environments.

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Financial Matters

A 19
FM 001

Modelling Financial Behaviour and Mobility Aspirations in Youth

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Abstract

This study examines how family financial socialisation shapes travel norms and mobility aspirations among Malaysian young adults through the lens of Prospect Theory. In the context of rising youth travel trends and increasing financial pressures, understanding how early financial experiences influence mobility decisions is increasingly important. The significance of this study lies in its integration of behavioural finance into tourism research, providing insights into how financial upbringing influences sustainable travel behaviour. The aim of this study is to investigate the influence of family financial socialisation on mobility aspirations among Malaysian young adults. Specifically, the objectives are to identify the overall level of key financial constructs, to analyse the relationships between financial socialisation, financial literacy, and mobility aspirations, and to determine the mediating role of financial behaviour. A quantitative cross-sectional design was employed, incorporating data from 393 respondents and analysed using Structural Equation Modelling (SEM) with AMOS. Descriptive findings indicate moderate levels of financial socialisation, financial literacy, and financial behaviour, alongside relatively high mobility aspirations. Confirmatory Factor Analysis demonstrated

satisfactory measurement properties, with factor loadings above 0.50, composite reliability between 0.70 and 0.85, and average variance extracted exceeding recommended thresholds. The structural model showed acceptable fit indices ($\chi^2/df = 2.30$, CFI = 0.915, TLI = 0.900, RMSEA = 0.058, SRMR = 0.054). Results reveal that financial socialisation significantly predicts financial literacy ($\beta = 0.36$, $p < 0.001$), which subsequently influences financial behaviour ($\beta = 0.41$, $p < 0.001$). Financial behaviour significantly affects mobility aspirations ($\beta = 0.38$, $p < 0.001$), with partial mediation observed. However, this study is limited by its cross-sectional design and reliance on self-reported data, which may affect causal interpretation. Consistent with Prospect Theory, individuals with stronger financial capability are more likely to perceive travel as a gain rather than a loss. The findings underscore the importance of early financial socialisation in promoting responsible financial behaviour and sustainable travel decision-making among youth.

Keywords: Behavioural finance; Financial behaviour; Financial literacy; Mobility aspirations

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Gender Issue

A 20 GI 001

Social Enterprise's Interventions and Women Economic Empowerment: Mediating role of human capabilities

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Abstract

Sustainable development goals (SDG-5 and SDG-10) emphasize gender equality and women's empowerment to achieve sustainable development worldwide, specifically in developing countries. However, in Pakistan, gender inequality has been observed as a persistent hindrance to achieving economic development and quality of life. The demographic of the population further intensifies this challenge, as women comprise almost 50% of the total population, and the majority are economically less empowered. Additionally, most of them also need capability development. Consequently, Pakistani social enterprises offer various interventions such as microloans, training, workshops, and other development support to reduce this disparity. In Pakistan, people perceive social entrepreneurship as a unique phenomenon for enhancing women's empowerment. Social enterprises claim an upliftment in women's empowerment by offering various interventions. However, this claim needs to be explored and supported through empirical research evidence. Consequently, this study aims to investigate the role of social enterprises'

interventions in women's economic empowerment using Human Capability Theory. The objectives of the study include identifying a unique mechanism for benefiting from social enterprises' interventions to enhance women's economic empowerment in developing countries such as Pakistan. A quantitative research approach was applied, using a time-lag (T1 and T2) survey method for data collection. Using purposive sampling and structured questionnaires, we collected data from 346 women micro-entrepreneurs in two districts of Pakistan (Lahore and Muzaffargarh). The data were analyzed using structural equation modeling (SEM) in AMOS software. The results reveal that social enterprises' interventions have a partial mediating impact through human capabilities on women's economic empowerment. This research paper offers insightful evidence and inferences on social enterprises, human capabilities, and women's economic empowerment, specifically in developing countries' contexts. This study is limited to the context of Pakistan. Nonetheless, we can expand it further to other developing countries and conduct a comparative study in different contexts as future research.

Keywords: Social Enterprises' Interventions, Human Capabilities, Women Economic Empowerment, Human Capability Theory.

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General Psychology

A 21 GP 001

Impact of Digital Platforms on Human Cognition and Mental Health: A literature review

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Abstract

In the era of rapid digitalization, the concept of "environment" has expanded beyond physical and natural boundaries to include the digital spaces that shape human daily life. In recent years, with the emergence of smartphones, people worldwide have adopted and expanded their use of the internet in every aspect of their daily lives, including communication, education, shopping, and entertainment. Nowadays, the world is largely dependent on digital platforms, which make daily life easier and more advanced. Digital platforms not only influence how individuals communicate, process information, and learn, but also include video-making and sharing applications and online services designed to engage through personal contact and continuous social connectivity. Besides this, these platforms provide social interaction worldwide by sharing all kinds of positive and negative information, news, and videos.

However, excessive use of these platforms affects human cognition and mental health. Mobile phones used to be mounted on walls, but now people cannot live without their cell phones in one hand at all times. The issue is much more complex than it seems. For example, on platforms like TikTok, many people show themselves diagnosed with ADHD and autism. In some cases, it is clear that they are highly addicted to social media, which affects their socialization and

concentration. People are often preoccupied with their digital devices while driving, eating, or even trying to meditate. This study aims to examine how people use digital platforms and how deeply this may affect our minds.

This study adopts a review-based approach, analyzing recent academic research on digital media usage and how it affects mental conditions, such as lack of sleep, addiction, memory function, emotional stability, and psychological stability. It may have limitations as it is based on previously published research and does not include primary data collection. However, this study shows both the negative and positive sides of digital platforms and highlights the importance of balancing digital habits to protect cognitive function and mental well-being.

Keywords: Digital platforms; Cognition; Mental health; Digital addiction

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A 22
GP 002

**Life Course Spatial Mobility: Micro-trajectories
and Patterns of Rural Migrants and Returnees**

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Abstract

Since the 1980s, migration from rural to urban areas has become the main trend of population mobility in China. Existing quantitative studies often reduce population migration to cross-sectional aggregate data, thereby neglecting micro-level subjectivity, identity transformations, and the complex humanistic significance of the life course. To bridge this gap, this study adopts a micro-level life course perspective. Using the life history survey method, the research examines 33 rural migrants and returnees from Shuangfeng County, China. By employing a "triple biography" framework—encompassing socio-familial, migration, and occupational trajectories—this study reconstructs the participants' complete spatial mobility trajectories from their initial departure to their current residence. The findings reveal that rural migration is a highly dynamic and complex process. Individual migration trajectories are deeply intertwined with critical life events such as pursuing higher education, employment, and family formation. Based on the crossing of geographical and administrative boundaries, this study conceptualizes the spatial mobility trajectories into a fourfold typology: "Move up," "Move down," "Drift out," and "Shuttle". Specifically, "Move up" characterizes an upward regional shift driven by rational pursuits of better education and career prospects, predominantly among permanent migrants. "Move down" is primarily observed among returnees, representing a rational choice to relocate to smaller cities or hometowns after

weighing life's pros and cons and securing a solid life foundation. "Drift out" reflects a pattern of multiple relocations across intra- and inter-provincial cities, characterized by a resolute determination to stay away from the hometown. Finally, "Shuttle" describes a fragmented, temporary mobility state in which individuals with unstable employment or income repeatedly move back and forth between their hometown and various cities. Through detailed qualitative cases, this research highlights the profound subjective nuances of population mobility. It provides micro-empirical evidence for understanding the spatial migration patterns of Chinese rural populations across different life stages and establishes a foundation for future inquiries into how emotional ties to places influence subsequent migration behaviors. A limitation of this study is that the sample consists of 33 respondents from a single village; covering more rural areas with population outflows would provide better micro-empirical evidence for spatial migration.

Keywords: Spatial mobility; Life course; Migration trajectories; Rural migrants

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Health / Healing Environment

A 23
HE 004

**“I’m Not the Same Person Anymore”:
Sociocultural lived experiences of stroke
recovery in Malaysia**

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Abstract

Recovery following stroke is often described in terms of physical outcomes and individual effort. However, these perspectives may overlook how recovery is experienced within everyday social and cultural contexts. This study is significant as, in culturally diverse settings such as Malaysia, recovery is closely intertwined with shared beliefs, social expectations, and daily practices. Stroke survivors may draw on a mix of biomedical care, traditional understandings of illness, and religious beliefs as they navigate recovery. Exploring these influences can offer a more grounded understanding of how recovery unfolds in real-life contexts. This study aimed to explore how stroke survivors make sense of their experiences of community reintegration within their sociocultural contexts. The objective of this study is to interpret how sociocultural influences shape stroke survivors' experiences of recovery and community reintegration. This study employed the Interpretative Phenomenological Analysis (IPA) as outlined by Pietkiewicz and Smith (2014) as the methodology. Thirteen stroke survivors participated in the study

through purposive recruitment. The researcher conducted in-depth, semi-structured interviews, audio-recorded them, and transcribed them verbatim. The data were analyzed in stages, starting with each case before identifying patterns across participants. The limitations of the study are that the findings are based on participants' subjective accounts and the researcher's interpretation, which may influence how the data are understood. Moreover, some participants were accompanied by caregivers during interviews due to functional limitations and caregiver concern, which may have influenced how experiences were expressed. Three themes emerged from the findings, illustrating how stroke survivors experience recovery within sociocultural contexts: Making Sense of Illness and Recovery Through Sociocultural, Spiritual, and Embodied Understandings (n = 11), Reconstructing and Negotiating the Self Within Sociocultural Contexts (n = 12), and Navigating Treatment Choices Within Pluralistic and Socioculturally Influenced Approaches (n = 7). These themes highlight how recovery is shaped by culturally and spiritually grounded interpretations, ongoing identity and social role renegotiation, and active navigation of multiple treatment approaches. Together, they demonstrate that recovery is not solely an individual or biomedical process but a dynamic, socioculturally embedded experience. These findings suggest that stroke recovery is not only a medical or individual process but also one shaped by social and cultural contexts. Rehabilitation approaches may benefit from greater flexibility and responsiveness to the different ways individuals draw on beliefs, relationships, and everyday practices in their recovery.

Keywords: Stroke survivors; Community reintegration; Sociocultural context; Interpretative Phenomenological Analysis

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A 24
HE 002

A Lightweight Machine Learning Framework for Urban Air Quality Prediction

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Abstract

Air pollution has become one of the most serious public health problems in the 21st century. Part of the reason this is happening is the rapid growth of cities around the world. Public sources are making air quality monitoring easily accessible, but high-precision short-term forecasts are rare. For this reason, communities find it hard to adapt to behavior in response to changes in pollution levels. Most forecasting systems today rely on legacy statistical methods for air quality prediction, but due to the highly non-linear and volatile nature of urban pollutants, these methods sometimes fail to deliver accurate predictions. In this study, a machine learning framework for real-time prediction of air quality indicators, such as PM_{2.5}, PM₁₀, CO, and NO₂, using wind speed and humidity as supplementary environmental variables that represent regional climatic conditions. We used two models and compared: Linear Regression as a statistical baseline and Random Forest as the main predictive model. The dataset was sourced from the Seoul Open Data Plaza website, which is a publicly available government-operated data portal managed by the Seoul Metropolitan Government. For data pre-processing, we use methods such as Min-Max normalization and handling missing values to ensure the data is

correct and the model functions more reliably. To measure how well our model works, we use MAE, RMSE, and R^2 . In the experiment, we gave equal weights to prediction accuracy and speed. The key differentiating factor of this framework is that it works on a low-resource configuration. This system is designed to leverage low-computing systems, focusing on high-accuracy short-term predictions, unlike other methods that rely on large and expensive computing infrastructure. Making it easy to use in many cities across Asia and Africa, where growth is rapid, and resources are limited. The experimental outcomes of the proposed framework show that it surpasses conventional statistical techniques in elucidating complex temporal pollution patterns. The goal of this work is to turn the predictive outputs into useful real-world information, helping local governments provide timely health advisories and enabling locals to make smart behavior choices based on real-time air quality conditions and ultimately leading to a healthier and more sustainable urban environment.

Keywords: Machine learning; Lightweight; Air quality; Prediction

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A 25 HE 005

AI and IoT in the Healthcare Environment: Behavioral impacts on patients and clinicians in Asian and African contexts

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Abstract

The physical and digital healthcare environment shapes human behavior in how patients seek care, how clinicians reason, and how trust is built between them. Previous environmental behavior research in AMER done before has examined healing environments, hospital wayfinding, and the built qualities that support patient comfort and staff performance. This paper extends that inquiry into a new domain: an in-depth examination of the integration of Artificial Intelligence (AI) and Internet of Things (IoT) technologies into healthcare settings, along with the behavioral consequences for the individuals who populate these environments. In this paper, we will examine two interconnected aspects. First, how AI diagnostic tools, IoT-enabled patient monitoring, and ambient clinical intelligence affect patient behavior by shifting healthcare-seeking patterns, reshaping trust in human clinicians, and inducing cognitive overload when AI-generated information is poorly designed. Second, how these same technologies alter clinician behavior by enabling cognitive offloading, which may erode critical thinking, reconfigure the doctor-patient encounter, reduce documentation burden, and introduce new dependencies on opaque algorithmic outputs.

The analysis is set on Asian, African, and Arabian healthcare systems. Because these systems face workforce shortages, a lack of specialists, and under-resourced facilities, the use of AI and IoT is highly urgent but risky. Most of these AI diagnostic models are trained on developed countries from North American and European data, which makes them perform worse in these developing regions, hence worsening health inequities. This leads to a gap in patient-reported outcomes from research done in healthcare, evaluating whether patients perceive themselves as being heard, respected, or more effectively supported following the introduction of AI into clinical settings.

This paper argues that AI and IoT should be seen not just as technical systems. They are also environmental interventions that change the social and technical conditions for healthcare behaviors. The paper calls for human-centered, culturally aware design frameworks that focus on the patient and clinician experience in Asian, African, and Arabian smart healthcare settings.

Keywords: Artificial Intelligence, Healthcare Environment, Environment-Behavior, Patient Behavior.

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A 26 HE 003

Cultural and Behavioural Perspectives on Traditional Medicine Use in Cardiovascular Health

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Abstract

Background: The growing burden of cardiovascular diseases, alongside increased interest in complementary and integrative approaches, has stimulated a substantial body of research exploring cultural and behavioural determinants of traditional medicine TM use. **Significance:** Understanding the global research landscape on TM use in cardiovascular health is essential for identifying knowledge gaps, guiding policy development, and integrating culturally sensitive healthcare strategies. **Bibliometric analysis** offers a systematic approach to evaluate publication trends, research productivity, and thematic evolution in this field. **Aim:** This study aims to investigate the bibliometric characteristics and evolving research patterns on cultural and behavioural perspectives of traditional medicine use in cardiovascular health. **Objectives:** To identify publication and citation trends from 2016 to 2026; to determine the most productive countries, journals, and funding agencies; and to establish key research themes and keyword networks related to TM use in

cardiovascular contexts. Methods: A bibliometric analysis was conducted using the Scopus database, retrieving 689 documents published between 2016 and 2026. Data were analysed using ScientoPy (v2.1.3) for publication and country trends, Scopus Analyzer for journal and funding insights, and VOSviewer (v1.6.20) for keyword co-occurrence mapping. Results: The results indicate a fluctuating yet overall increasing publication trend, peaking in 2025 (98 publications), while citation counts were highest in 2019 (4060) and 2024 (3718). The United States (17.85%) and China (16.98%) emerged as leading contributors, supported by major funding bodies such as the National Natural Science Foundation of China (7.84%) and the National Institutes of Health (5.08%). Prominent journals included Journal of Ethnopharmacology, BMC Complementary Medicine and Therapies and BMJ Open. Keyword analysis revealed that behavioural and cultural constructs form a central research cluster, with high occurrences of “attitude” (14), “knowledge” (13), “medication adherence” (13), indicating strong emphasis on patient perceptions and decision-making processes. These are closely linked with health outcomes such as “hypertension” (74), “cardiovascular disease” (17), and “diabetes” (16). The clustering pattern demonstrates an intersection between cultural beliefs, behavioural responses, and chronic disease management. Limitations: The study is limited to the Scopus database and may exclude relevant publications indexed from other sources. Implications: The findings underscore the importance of integrating cultural competence and behavioural insights into cardiovascular healthcare strategies. Emphasizing patient attitudes, belief systems, and health literacy can enhance adherence and optimize the safe integration of traditional medicine within modern clinical practice.

Keywords: Traditional medicine; Cardiovascular disease; Cultural perspectives; Bibliometric analysis (10AN)

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A 27 HE 001

Effect of Educational Programs on Foot Care Knowledge and Practices among Diabetes Patients in Asia: A systematic review

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Abstract

Background: Diabetic foot complications represent a major public health challenge and are among the leading causes of morbidity, disability, and reduced quality of life among individuals living with diabetes. Impaired mobility, chronic wounds, and lower limb amputations significantly affect individuals' well-being and impose a substantial burden on healthcare systems. Inadequate knowledge of foot care and poor self-care practices, especially among Asian remain the most modifiable factors contributing to preventable diabetic foot complications, particularly in community and outpatient care settings. **Significance:** Promoting effective foot care through education is important for enhancing functional independence, well-being, and quality of life among people with diabetes. **Aim:** This systematic review aimed to evaluate the effect of an educational program in improving knowledge and foot care practices among patients with diabetes in Asia. **Objectives:** Evaluate the effect of

an educational program on foot-care knowledge and practices. **Methods:** The PRISMA 2020 guidelines were followed to conduct this literature review. Peer-reviewed studies published from January 2015 to March 2025 were retrieved from PubMed/MEDLINE, Scopus, CINAHL, Cochrane Library, Wiley, ScienceDirect, SpringerLink, and Google Scholar. Randomized controlled trials and quasi-experimental designs evaluating structured educational interventions targeting diabetic foot care practices among adults in Asia. The RoB 2 tool for randomized controlled trials and ROBINS-I for non-randomized studies to assess the risk of bias. **Results:** This study included three randomized controlled trials and 13 quasi-experimental studies conducted in Asian countries. Educational interventions delivered by the healthcare professionals included face-to-face education, printed and multimedia materials, mobile health applications, and community-based programs. Significant improvements in foot care practices, including daily foot inspection, hygiene, appropriate footwear use, and early recognition of foot problems, were reported in most studies. Several studies also demonstrated improvements in self-efficacy and foot care knowledge. **Conclusion:** Educational interventions are effective in strengthening foot care practices among individuals with diabetes in Asia. Structured, reinforced education programs are important for preventing diabetic foot disease. To strengthen the evidence base, further studies should focus on high-quality randomized trials with consistent outcomes over a longer study period. **Implications:** Effective foot care education can foster good knowledge, foot care practices, and self-efficacy, thereby reducing the risk of diabetic foot complications.

Keywords: Diabetes Mellitus, diabetes foot care, educational intervention, foot care practice

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Inclusive / Less Abled Environment

**A 28
IE 001**

Universal Design Learning-Based Support TKYM Model for Malaysian Autism-Inclusion Centers

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Abstract

Conventional specialized autism-inclusion centers often prioritize behavioral compliance over holistic well-being. The CAST Universal Design Learning (UDL) 3.0 Guidelines are standards designed to support neurodiverse learners, especially autistic learners, in inclusion education. Adhering to the guidelines, autism-inclusion centers are now required to prioritize their practices that create inclusive educational experiences for neurodiverse learners. Albeit UDL-aligned practices support consistent access to monitor UDL, their implementation, in terms of quality and staff training, varies across centers. The significance of this study is the UDL-based support TKYM model that Malaysian autism-inclusion centers can adopt to promote inclusivity in line with SDGs 4 and 10. Adopting this model, educators can customize strategies to better support autistic learners across educational environments, enhancing participation and learning opportunities, especially in areas with limited resources and training. The aim of this study is to propose a UDL-based support TKYM model for Malaysian autism-inclusion centers. The objectives of this study are to: (1) identify the autism-inclusion centers' readiness and willingness to adhere to UDL guidelines; (2) examine the autism-inclusion centers' implementation of the UDL guidelines; (3) explore how the UDL guidelines can be

effectively implemented at autism-inclusion centers; and (4) explore the autism-inclusion centers' needs in implementing UDL guidelines. A mixed-methods approach was employed to collect quantitative data, using a questionnaire administered to 50 participants at private autism-inclusion centers in the Klang Valley, Malaysia. The semi-structured interview was conducted with five administrators, five educators, and five therapists. SPSS and NVivo15 are used to analyze quantitative and qualitative data, respectively. The limitations of this study are that it was conducted in only the Klang Valley, Malaysia, at a private center, and involved a limited number of participants. The results show that autism-inclusion centers implementing UDL could improve autistic learners' engagement, representation, action, and expression while also advancing SDG 4 (quality education) and SDG 10 (reduce inequalities) by fostering more inclusive and equitable learning environments. The implications of this study are to enable autistic learners to access and benefit from high-quality education on an equal basis with others, supporting the goal of inclusive and equitable learning under SDG 4. At the same time, it aligns with SDG 10, which focuses on eliminating discrimination and reducing inequality within Malaysian societies.

Keywords: Autism-inclusion center, Universal Design for Learning (UDL), Inclusive Education, SDG 4 and 10

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Legal Matters

A 29 LM 001

Viral Reactions, Legal Consequences: A case study of the 2024 Tangier sexual assault

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Abstract

In September 2024, a video was widely circulated on the internet of a young woman being sexually assaulted by minors on the streets of Tangier. The unauthorized recording sparked national outrage and gave rise to a wave of online reactions that spanned from September 2024 to November 2024. Many Moroccan content creators took to their TikTok accounts to address the incident, commonly referred to as the "Tangier girl" or "فتاة طنجة". The video prompted some TikTok users to support the young woman, while others condemned her clothing choices, revealing deep-rooted societal divisions around gender-based violence in Morocco. Against this backdrop, the study examines how digital activism shaped public discourse around the case and whether such online mobilization translated into meaningful social or legal change. The research employs thematic analysis to examine high-engagement TikTok videos and their comments posted during the three-month period. The analysis identifies recurring patterns of meaning across the data, tracing how themes such as victim-blaming, youth mobilization, polarization, and resistance emerged and evolved across five waves of content circulation. Feminist

theory provides the interpretive lens through which these themes are analyzed, enabling an examination of how gender, power, morality, and patriarchal norms were negotiated within digital discourse. The findings indicate three main benefits of cyberactivism: generating visibility around street harassment, mobilizing youth engagement, and countering victim-blaming through forms of digital resistance. At the same time, the findings reveal important limitations. Cyberactivism is limited in disrupting prevailing social norms, provokes divisions, and shows constraints in producing lasting structural change. The analysis shows that while digital activism created pressure that contributed to a short-term legal response, broader institutional reform or sustained transformation was not evident within the scope of this analysis. The research raises critical concerns about the boundaries of social media activism in achieving structural transformation in Moroccan society, while acknowledging its transformative potential to mobilize resistance.

Keywords: Digital activism; Sexual harassment; Feminist resistance; Youth mobilization

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Sustainable Environment

A 30 SuE 002

Evaluating EM Mudball Density Effects on Ammonia Reduction in Stormwater Ponds

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Abstract

Urban stormwater retention ponds are essential infrastructures for managing runoff. However, their functional performance is often compromised by elevated ammoniacal nitrogen (NH₃-N) concentrations resulting from nutrient accumulation, organic loading, and prolonged low flow conditions, particularly in tropical environments. This degradation not only affects water quality but also limits ecological functionality and long-term sustainability. While Nature-Based Solutions (NbS), such as Effective Microorganism (EM) mudballs, have gained cumulative consideration as low-cost and environmentally responsive remediation approaches, existing studies primarily focus on overall water quality improvements, with limited emphasis on the influence of application design parameters. In particular, the role of mudball density as a determinant of ammonia removal efficiency remains insufficiently explored, restricting the development of evidence-based and scalable implementation strategies. This study aims to explore the effect of EM mudball application density on ammonia reduction in a stormwater retention pond. The objectives are to determine changes in NH₃-N concentrations before and after the

intervention, to identify spatial variations across the inlet, mid-pond, and outlet zones, and to assess the effectiveness of a defined mudball density in enhancing ammonia removal performance. A quantitative field-based approach was employed in a campus-scale stormwater retention pond characterised by low flow conditions. Water quality data were collected from three sampling points ($n=3$) representing functional zones. In-situ measurements were conducted using a multiparameter probe, focusing on $\text{NH}_3\text{-N}$ as the primary indicator, with support from dissolved oxygen (DO), pH, temperature, and electrical conductivity (EC). A total of 1,365 EM mudballs were applied at an estimated density of 1.28 mudballs/ m^2 . Baseline and multiple post-intervention measurements were conducted to evaluate temporal and spatial treatment performance. The findings indicate a substantial reduction in $\text{NH}_3\text{-N}$ concentrations, with a decrease of approximately 65%, demonstrating effective nutrient removal associated with enhanced microbial activity. Spatial analysis shows consistent reduction trends across all sampling zones, with greater responsiveness observed near inflow areas. Supporting parameters reveal moderate improvements in DO and reductions in EC of approximately 44%, while pH and temperature remained stable. However, the study is limited by a single-density approach and a short-term monitoring period, which constrain the identification of optimal thresholds. Nevertheless, the study provides empirical evidence linking mudball density to ammonia removal efficiency and offers practical implications for developing scalable, low-cost NbS strategies in urban stormwater management.

Keywords: EM Mudball, Ammonia Reduction, Stormwater, Nature-Based Solutions

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A 31
SuE 001

How Environmental Perception Drives Climate Awareness among Oil Palm Smallholders?

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Abstract

The adoption of sustainable agricultural practices by oil palm smallholders is vital for maintaining ecological balance and economic stability in Malaysia. While top-down policies often focus on financial support, the Knowledge, Attitude, and Practice (KAP) Model suggests that a farmer's internal psychological state, specifically their knowledge and perceptions, fundamentally shape their environmental practices. To design effective behavioral interventions, policymakers must understand the environmental-behavior dynamics driving these farmers. Without addressing the psychological factors that link ecological perception to active climate awareness, financial incentives alone are insufficient to produce long-term, sustainable habits. This study aims to explore the psychological and behavioral drivers connecting environmental perceptions to climate change awareness among oil palm smallholders in Johor, Malaysia. The specific objectives are to identify the underlying factor structure of smallholders' sustainability

perceptions and awareness, and to establish the relationship between positive ecological perception and active climate awareness. This study utilized a quantitative research design based on the KAP Model and Environmental Awareness Theory. Data was gathered through a structured questionnaire and 202 randomly selected independent oil palm smallholders across Johor. Data was analyzed using SPSS, specifically utilizing Exploratory Factor Analysis to group variables, and Pearson correlation for the relationships test. The scope of this study is geographically limited to Johor, and the purely quantitative methodology restricts qualitative exploration into the deeper cultural or personal reasons behind the reported perceptions. The results from Factor analysis successfully categorized perception into two main dimensions i.e., Environmental Benefits and Ecological and Health Impacts. Awareness was categorized into Climate Change Mitigation and Climate Change Impacts. Smallholder farmers demonstrated exceptionally high positive perceptions (means > 4.30) and high climate awareness (means 3.98–4.38). Crucially, hypothesis testing revealed a statistically significant relationship ($p < 0.05$) between a smallholder's positive perception of sustainable agriculture and their awareness of climate change, validating the KAP model's premise that positive attitudes drive deeper awareness. Environmental awareness in this community is strongly driven by an intrinsic understanding of ecological and health benefits. Consequently, agricultural training programs must pivot from purely technical instructions to holistic, continuous environmental education to effectively translate this high psychological readiness into actual sustainable farming practices.

Keywords: Environment-behaviour; KAP Model; Agricultural extension; Factor analyses

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A 32
SuE 003

Songdo's Integrated Strategies for Environmental Sustainability and Disaster Risk Reduction

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Abstract

Urban centres worldwide face escalating climate-induced hazards—including riverine flooding, typhoons, and extreme heat events—that demand transformative approaches to planning and governance in the built environment. This paper critically examines Songdo International Business District, South Korea, as a paradigmatic smart city case study, analysing how its integrated technological infrastructure mediates environment-behaviour (E-B) dynamics within the broader context of natural disaster risk reduction (DRR). As a globally recognised exemplar of purpose-built smart urbanism, Songdo offers a unique analytical lens for interrogating the relationship between technologically mediated urban environments and the behavioural responses of their inhabitants under conditions of climate risk. Drawing on an E-B theoretical framework, the study evaluates how Songdo's urban systems—comprising real-time IoT sensor networks, sustainable stormwater and water management infrastructure, energy-efficient building envelopes, green corridor planning, and automated emergency response protocols—shape residents' risk perception, place attachment, pro-environmental behaviour, and community preparedness. Findings indicate that while these systems advance data-driven DRR governance and proactive hazard mitigation at the city scale, their influence on individual and collective behaviour remains spatially

and socio-economically uneven across residential populations. Critical tensions emerge between the city's predominantly top-down technocratic planning model and the imperatives of participatory co-creation, equitable access to smart technologies, and the activation of multifunctional public spaces as catalysts for social cohesion and community resilience. The underutilisation of civic and green spaces further constrains the formation of place-based social networks essential to informal DRR capacities. The paper argues that technological sophistication alone is insufficient for sustainable urban resilience. Effective DRR necessitates human-centred design that cultivates public trust in early warning systems, reinforces behavioural adaptive capacity, and fosters inclusive, bottom-up community engagement. This study contributes to emerging scholarship at the intersection of smart urbanism, climate adaptation, and E-B research, advocating for integrated planning frameworks that are simultaneously technologically robust, socially equitable, and behaviourally responsive to the realities of increasing climate risk

Keywords: smart urbanism; disaster risk reduction (DRR); environment-behaviour (E-B) studies; climate-adaptive urban resilience; IoT-enabled hazard management; participatory urban planning.

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A 33 SuE 004

What Truly Matters in Global Energy Policy for Sustainable and Resilient Energy Futures?

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Abstract

The accelerating transition toward low-carbon and sustainable energy systems has elevated energy policy as a central force shaping global responses to climate change, energy security, and economic resilience. Despite this growing importance, there remains a critical gap in understanding what truly matters within the evolving landscape of global energy policy and how research trends reflect these priorities. Addressing this gap is essential for identifying the key drivers and strategic directions that influence effective and inclusive energy transitions. This study aims to examine the global evolution of energy policy research and to uncover the themes that most significantly contribute to sustainable and resilient energy futures. The objectives are: (1) to analyse publication trends and the growth trajectory of energy policy research; (2) to identify leading contributors, including countries, institutions, and authors; and (3) to determine dominant and emerging themes that

reflect global policy priorities and societal needs. A bibliometric and knowledge mapping approach was employed using data from Scopus and Web of Science databases covering the period from 2000 to 2025. Following data cleaning and deduplication, a total of 3,978 publications were analysed. ScientoPy was used to evaluate research performance and productivity, while VOSviewer was applied to construct co-authorship, co-citation, and keyword co-occurrence networks to reveal the intellectual structure of the field. The findings indicate a marked acceleration in research output, particularly after 2015, driven by global decarbonization commitments and renewable energy targets. Key themes include energy transition strategies, policy frameworks, renewable integration, energy security, and sustainability governance. Importantly, the research focus has shifted from predominantly technical perspectives toward policy implementation, regulatory mechanisms, and socio-economic considerations, highlighting an increasing emphasis on human and institutional dimensions. A limitation of this study is its reliance on indexed databases, which may exclude relevant regional or non-indexed contributions. Nevertheless, the findings provide valuable insights into the priorities shaping global energy policy. The study underscores the need for coherent policy alignment, adaptive governance frameworks, and integrated strategies that bridge technological innovation with societal engagement. These insights are essential for policymakers, researchers, and stakeholders seeking to navigate and shape sustainable and resilient energy futures.

Keywords: Energy policy, Sustainability, Energy transition, Knowledge mapping

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Technology-related Environment

A 34 TE 003

Ensuring Fault Tolerance and Privacy in IoT-Integrated Smart Parking Systems

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Abstract

Most cutting-edge systems for smart parking are not fault tolerant mostly because they handle the efficiency part but slightly overlook the security part, for instances like: the system misses or detects the wrong number plate, duplicate payments occurs, number plate is partially visible(dirty or occluded) mainly due to the system connectivity being unstable, or since the systems already in place do not provide a complete proof of payment there can be cases of user disputing the charges rightfully due to system error or wrongly. In addition, users are concerned about their privacy being exposed through the parking system, as at the gate, their license plate and payment information are recorded and stored. Though a couple of research ideas have emerged for incorporating consortium blockchain for privacy, issues such as increased complexity, reduced throughput, and scalability problems have been raised. Up to now, most of the research about smart parking has not addressed in detail how such events can be remediated. Therefore, our research will investigate how the system can be fault-tolerant by defining valid state transitions (exact states only through which the payment is declared successful) and guarantee invariants such as no vehicle is charged twice for the same session, no penalty is issued if payment confirmation exists, and no session remains active

after verified exit. The system is scheduled to handle token-based identification and processing, through which the user's identity will be disclosed only in certain incidents (safety issues or theft). Moreover, to conclude our research, we will address the issue of non-repudiation by providing a full electronic receipt, which will indeed infer transparency of payments and fines, with explanations.

The proposed methodology will utilize IoT-integrated ALPR (Automated License Plate Recognition) and a Fog layer to handle data processing locally at the gate, thereby remedying unstable connectivity issues. The system's effectiveness will be evaluated using an empirically calibrated simulation model to verify that the defined invariants hold true across diverse situations in the parking. The expected results shall include a significant reduction in billing disputes and a more privacy-resilient identification process, resulting in greater user satisfaction.

Keywords: State-Invariant; Tokenization; ALPR; Fog Architecture

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A 35
TE 002

On-Device LLM Reasoning for IoT Anomaly Detection in Fog Computing Environments

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Abstract

Right now, when we use IoT devices to keep an eye on the environment, they are set to shout if a number goes above or below a certain point, and they will tell you that something is odd, but not why...which is a problem for both scientists and getting a grip on public health. This project asked whether a relatively small computer program (a Small Language Model) running on a normal home computer could be part of a cheap, mixed "fog" computing system that figures things out in a city and as things happen. We put together and tested a three-step system for gathering info: dedicated IoT sensors got temperature, humidity, and air quality. A phone app got sound, light levels, and air pressure, and everything went via MQTT to a laptop, which was the 'fog' part. An Isolation Forest program found the anomalies. And when it did find something unusual, a 3-billion-parameter language model (Llama 3.2 3B using Ollama) gave a simple explanation in plain language and said what to do about it. It did all this on the laptop itself, without needing the cloud. The test involved five types of environmental problems we created, and we repeated every ten times for a total of 50 events, and we ourselves noted what was really causing each problem. We then looked at how well it did, using precision, recall, the F1 score, the number of things it incorrectly flagged, the accuracy of its

explanations, and how long the whole thing took. And the experiment showed that cheap sensors and a language program running on the computer you have at home can really be used to understand anomalies in a city's environment, and importantly, in places that do not have much money.

Keywords: Edge computing; IoT anomaly detection; Small language models; Urban environmental monitoring

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**A 36
TE 001**

Prospect-Refuge Theory Dualisms in Role-Playing Game (RPG) Environments: Examining critical engagements in a virtual city

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Abstract

Computer games have become a source of digital entertainment across generations, spanning multiple genres and themes, creating a spectrum of experiences in virtual worlds. It has emerged from the first generations of arcade games to three-dimensional worlds known as sandbox games. These are largely role-playing games (RPGs) in which players assume the role of a character, forming a digital identity to navigate the world, guided by game mechanics and a storyline. Beyond their basic game structure, game designs grounded in theories are limited. Yet they are observed to exist, albeit inevitably and unnoticed, within elements of game environments, such as the Prospect-Refuge Theory. In this paper, to better understand how the theory's concepts manifest in a game environment, we examined critical player engagements with a range of the theory's dualism concepts in a resource-management RPG realm. Using Grand Theft Auto: Vice City (GTA) as a pars pro toto of sandbox games, we seek to understand how these drivers in

a virtual city affect game pacing. In this case, the dualism elements were established, leading to a less rigid understanding of player-game pacing, typically noting a positive game pacing. To attain this, we have employed the following methods: 1) video content analysis (VCA); 2) classifying drivers of game engagements; and 3) formulating a game pacing factoring system. The reworked technique omitted the arbitrary pointing system from a seminal study. The pacing curve generated a striking dynamic variation of apexes, plateaus, and pits within the dualism elements, revealing a push-and-pull factor influence. Research findings suggest that the game's pacing, as determined in the study, depends solely on the set variables. Hence, there is a need to expound on the proposed techniques and test them across various GTA series to determine the ideal game pacing curve and assess the consistency of the findings.

Keywords: prospect, refuge, dualism, games

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A 37 TE 004

To what Extent has Energy Storage Research over the Past 25 Years Shaped Policy Trajectories and Societal Transformation?

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Abstract

Over the past 25 years, energy storage technologies have transitioned from niche technical innovations to critical enablers of global energy transition strategies. Despite substantial advancements in performance, efficiency, and scalability, a key question persists: to what extent has this expanding body of research shaped policy trajectories and broader societal transformation? Addressing this question is essential to understanding whether technological progress has translated into meaningful policy alignment and societal impact. This study aims to critically examine the extent to which energy storage research has contributed to shaping policy development and societal change between 2000 and 2025. The objectives are: (1) to analyse the growth and evolution of global energy storage research; (2) to identify key contributors, including leading countries, institutions, and authors; and (3) to evaluate the alignment between emerging research themes, policy priorities, and societal needs.

A bibliometric and knowledge mapping approach was employed using data retrieved from Scopus and Web of Science databases. Following data cleaning and deduplication, several thousand peer-reviewed publications were analysed. ScientoPy was used to assess research productivity and citation impact, while VOSviewer was applied to construct co-authorship, co-citation, and keyword co-occurrence networks, enabling the identification of intellectual structures and thematic evolution across the field. The findings reveal a substantial expansion in research output, particularly after 2010, driven by global decarbonization agendas and the increasing integration of renewable energy systems. Early research was predominantly technology-centric, focusing on battery chemistry and performance optimisation. In contrast, more recent studies demonstrate a notable shift toward policy implementation, regulatory frameworks, sustainability considerations, and socio-economic dimensions. However, the extent to which research has shaped policy and societal transformation remains uneven across regions, with stronger alignment observed in countries actively advancing energy transition strategies. A key limitation of this study is its reliance on indexed databases, which may exclude relevant regional or non-indexed contributions. Nevertheless, the findings provide important insights into the evolving role of energy storage research beyond technical innovation. The study underscores the need for stronger integration between research, policy design, and societal engagement to ensure that technological advancements effectively contribute to sustainable and inclusive energy transitions.

Keywords: Energy storage, Policy impact, Societal transformation, Bibliometric analysis

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Tourism / Hospitality Environment

A 38 THE 006

An Observational Study of Architectural Tourism Experience at Gyeongbokgung Palace Korea

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Abstract

This study explores the architectural tourism experience at Gyeongbokgung Palace through an observational research approach. As one of the most iconic heritage sites in South Korea, the palace represents a significant symbol of the Joseon Dynasty and attracts both domestic and international tourists interested in history, culture, and traditional architecture. The purpose of this study is to examine how visitors interact with and experience the architectural elements of the palace environment in a real-world setting. Using non-participant observation, data were collected by systematically recording tourists' behaviors, movement patterns, engagement levels, and responses to key architectural features such as gates, courtyards, pavilions, and ornamental details. The findings reveal that visitors demonstrate varying degrees of engagement depending on spatial design,

accessibility, and visual prominence of architectural elements. Highly detailed structures and visually striking features tend to attract longer attention spans, while open spaces encourage photography and social interaction among visitors. Furthermore, the study observes that visitors' experiences are strongly shaped by the physical layout and spatial organization of the palace, which influence movement patterns and areas of concentration. Distinct architectural zones, such as ceremonial spaces, administrative halls, and enclosed courtyards, encourage different types of visitor behavior, ranging from passive observation to active exploration and interpretive engagement. The visual harmony, scale, symmetry, and historical authenticity of the structures also contribute to a deeper sense of aesthetic appreciation and cultural immersion among tourists. In addition, the study highlights that interpretive elements such as signage, guided pathways, and spatial transitions play an important role in shaping how visitors navigate and understand the heritage site. These elements help facilitate orientation and enhance the overall visitor experience, particularly for first-time tourists. However, certain challenges were identified, including congestion in high-traffic zones, limited resting areas, time limitation and uneven distribution of visitors across the site which may affect comfort levels and restrict opportunities for meaningful spatial exploration. Despite these limitations, Gyeongbokgung Palace remains a highly engaging architectural tourism destination due to its rich historical narrative and well-preserved built environment. This study contributes to the growing body of knowledge on architectural tourism by emphasizing the importance of observational methods in capturing authentic tourist behavior within heritage environments. It further highlights how spatial design, architectural form, and visitor flow collectively shape the overall tourism experience in cultural heritage settings.

Keywords: Architecture; Tourism; Tourist experience; Gyeongbokgung Palace

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A 39 THE 001

Drivers of Revisit Intentions in the South Korean Tourism Sector: A pilot study

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Abstract

Revisit intention has emerged as a critical area of inquiry in the increasingly competitive global tourism landscape, where destinations continuously strive to retain visitors and encourage repeat travel. While a substantial body of literature has examined tourist satisfaction and loyalty, there remains a lack of clarity about the underlying motivations driving repeat visitation and the distinctive characteristics of repeat visitors. Addressing this gap, the present study aims to identify and analyze the key factors influencing repeat visits to South Korea. This destination has experienced significant growth in international tourism, particularly through cultural exports. This research adopts a quantitative approach to examine the perceptions and motivations of repeat visitors. The findings reveal that cultural and experiential attributes play a central role in shaping revisit intentions. Specifically, this study found the elements associated with the Korean Wave (Hallyu) are most influential, including K-drama scenery, Korean pop music (K-pop), and the appeal of Korean drama celebrities. These factors not only enhance the

destination's image but also create emotional connections that encourage tourists to relive their experiences. In addition, tangible lifestyle components such as Korean cuisine and the country's beauty industry, particularly cosmetics, makeup techniques, and hairstyling quality, were identified as significant motivators for repeat visits. The results further indicate that these attributes contribute strongly to destination loyalty. Respondents demonstrated a strong attachment to South Korea, expressing clear intentions to revisit and a strong willingness to recommend it to others as a preferred holiday destination. This result suggests that repeat visitors are not only driven by satisfaction but also by a deeper sense of cultural affinity and experiential fulfillment. Overall, the study contributes to understanding repeat tourism behavior by highlighting the importance of cultural influences, experiential consumption, and lifestyle appeal in shaping revisit intention. The findings provide valuable insights for destination marketers and policymakers in designing targeted strategies that leverage popular culture and enhance visitor experiences. By focusing on the attributes that resonate most with repeat visitors, South Korea can further strengthen its competitive position and sustain long-term tourism growth.

Keywords: Revisit Behavioural Intentions, Destination Loyalty, Relationship Marketing, South Korea.

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A 40 THE 002

Ecotourism Readiness in Mersing: Metri construction and training role

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Abstract

Coastal fishing communities are currently facing increasing economic pressures due to income uncertainty, climate change, declining marine resources, and structural market constraints that affect livelihood stability and household resilience. As a result, income diversification strategies have become essential to enhance resilience, reduce poverty risks, and support long-term socio-economic sustainability. In this context, ecotourism is increasingly recognized as a viable pathway for diversifying income, as it generates additional revenue while promoting environmental conservation and strengthening community participation in sustainable tourism development. This study develops and empirically validates a Multidimensional Composite Ecotourism Readiness Index (METRI) to assess the readiness of coastal fishing communities in Mersing, Malaysia, for ecotourism development. The index is constructed using questionnaire data based on multiple Likert-scale indicators that are standardized into a composite measure. The findings

reveal that METRI demonstrates strong reliability and indicates a generally high level of readiness, although notable disparities exist across households. Key strengths include natural and marine resources, social capital and community engagement, and maritime culture and heritage, which provide a strong foundation for ecotourism development. However, limitations in attitudes toward participation, along with weaknesses in management and governance, remain critical constraints. Factor analysis confirms the robustness of the measurement model, while regression results show that training exposure significantly improves overall readiness, particularly in shaping positive attitudes and encouraging participation. These findings highlight the importance of capacity-building initiatives in strengthening community preparedness. Despite its contributions, this study is limited by its focus on a specific geographic area and reliance on cross-sectional self-reported data, which may affect generalizability and limit the ability to capture changes over time. Nevertheless, the study offers important implications by emphasizing the need for targeted interventions to improve financial literacy, governance capacity, and community engagement. Overall, the METRI provides a practical diagnostic tool for policymakers to identify readiness gaps and design effective strategies that promote sustainable income diversification and long-term community development in coastal regions.

Keywords: Ecotourism Readiness; Fishing Communities; METRI Index; Coastal Sustainability.

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A 41 THE 004

Influence of Portuguese Colonial Heritage on Tourism Appeal and Community Engagement in Malacca: A quantitative analysis of tourists and local residents

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Abstract

Malacca's Portuguese colonial legacy is well-known UNESCO World Heritage Site situated in Malacca, Malaysia. The heritage site is expected to bring benefits to the local community and tourists. However, the extent to which this heritage contributes to tourism development and community engagement remains underexplored. In tourism research, one key problem identified is the lack of empirical models linking colonial heritage assets to tourist behaviour and local community participation. Compounding this issue is the rapid urbanisation and modernisation of Malacca. The rapid development in Malacca has introduced environmental and community challenges, including the erosion of historical authenticity, the displacement of local communities, and increases pressure on heritage sites. These problems have threatened the sustainability of heritage tourism by prioritising commercial development over cultural preservation. Therefore, the objectives of this study are to investigate the multifaceted influence of Portuguese colonial heritage on tourism

dynamics and community involvement in Malacca. Data were collected from 300 respondents in a survey. Respondents were domestic, international tourists, and residents of the Portuguese Settlement. The findings of this research demonstrated that Portuguese heritage significantly enhances tourism appeal and visitor satisfaction. This eventually will increase revisit intentions. But at the same time, community engagement remains moderate, hindered by limited institutional support and economic opportunities. The study also shows the vulnerability of living heritage sites and the need for inclusive conservation strategies that empower local stakeholders. As a recommendation, policy interventions are needed, including community-based tourism programs and heritage education campaigns. What is also needed is inclusive economic incentives to strengthen local participation and ensure the long-term sustainability of Malacca's colonial legacy. These strategies offer practical guidance for policymakers to balance cultural preservation with equitable development amid urban transformation.

Keywords: Portuguese heritage; Heritage tourism; Community engagement; Sustainability; Malacca, UNESCO

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A 42 THE 005

Role of Intelligence in Advancing Tourism Safety and Growth: A cross-country empirical analysis

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Abstract

Tourism safety is increasingly recognized as a fundamental determinant of destination competitiveness, influencing travelers' risk perceptions, satisfaction levels, and behavioral intentions. In the context of growing global uncertainty and strengthened competition among destinations, ensuring a safe tourism environment has become both a strategic priority and a key driver of sustainable tourism development. While the existing literature has largely pointed out the roles of institutional quality, governance structures, and infrastructure in shaping tourism safety, comparatively little attention has been paid to the influence of human cognitive capacity and intelligent systems. Addressing this gap, the present study investigates the relationship between societal intelligence and tourism safety and

examines how it contributes to tourism performance across countries. Using cross-national data, the analysis investigates the association between national-level cognitive capacity—proxied by average IQ—and a range of tourism safety indicators, including perceived safety levels, exposure to crime-related risks, and tourists' revisit intentions. The empirical results reveal a statistically significant, positive relationship, indicating that higher levels of cognitive capacity are consistently associated with improved safety conditions and enhanced visitor confidence. Countries with relatively higher cognitive benchmarks tend to exhibit more stable, organized, and secure tourism environments. In contrast, those with lower benchmarks frequently encounter difficulties related to views on safety and risk management. Furthermore, the study considers the potential two-way relationship between intelligence and environmental safety. The data suggest a reinforcing mechanism: cognitively advanced societies are more likely to establish effective institutional structures, social coordination systems, and risk-mitigation practices, which, in turn, foster more secure environments. These safer conditions subsequently support knowledge accumulation, behavioral adjustment, and institutional efficiency, thereby maintaining long-term development. In addition, interaction effects between tourism safety and intelligence are found to positively influence tourism productivity, highlighting the indirect yet meaningful role of cognitive and social capacities regarding enhancing sectoral performance. From a policy perspective, the study stresses the importance of including human capital development, education, digital governance, and intelligent technologies into tourism strategies. Such an integrated approach can strengthen destination resilience, improve safety outcomes, and enhance sustainable and inclusive tourism growth.

Keywords: Tourism safety; National intelligence; Human capital; Destination competitiveness; Tourism productivity; Cross-country analysis; Sustainable tourism

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A 43 THE 003

When Robots Feel Human: Rethinking Guest Experience in Smart Hospitality

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Abstract

This study examines how service robot design shapes customer experiences in the hospitality sector and responds to the accelerating shift toward automation in technologically advanced contexts such as Hangzhou, China. Despite the rapid adoption of service robots, a critical problem persists: existing technology acceptance models emphasize functional efficiency while overlooking the emotional and relational dimensions essential to hospitality experiences. Moreover, researchers have paid limited attention to how anthropomorphism and perceived emotional intelligence (PEI) jointly influence customer emotions, and to how perceived risk of service failure may alter these relationships. To address these gaps, this study aims to achieve three objectives. First, it evaluates the effects of anthropomorphism and PEI on customer emotional responses. Second, it analyzes how these emotional responses mediate overall service experience. Third, it tests whether perceived risk of service failure moderates these relationships. Drawing on the Service Robot Acceptance Model (SRAM), Anthropomorphism Theory, and Cognitive Appraisal Theory (CAT), the study develops a moderated-mediation framework that integrates both design attributes and customer perceptions. The

study adopts a quantitative approach and collects data through a cross-sectional survey of 319 hotel guests in Hangzhou who have interacted with service robots. It analyzes the data using a two-step structural equation modeling (SEM) approach, conducting preliminary analysis in SPSS 26.0 and hypothesis testing in SmartPLS 4.0. It evaluates reliability, validity, mediation, and moderation systematically to ensure robustness. The findings show that anthropomorphism and PEI significantly enhance positive customer emotional responses, which in turn improve evaluations of the overall service experience. The results also confirm that emotional responses fully mediate these relationships, underscoring their central role in human–robot interaction. However, the analysis does not support the moderating effect of perceived risk of service failure, indicating that emotional engagement remains strong even when customers perceive potential risks. This study advances theory by extending technology acceptance frameworks to incorporate emotional and relational dynamics and by challenging assumptions about the role of perceived risk. In practice, it highlights the importance of hospitality managers designing emotionally intelligent, culturally sensitive robots that enhance guest satisfaction and service quality.

Keywords: Anthropomorphism; Emotional Intelligence; Guest Experience; Service Robots

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Transport / Travel Environment

A 44
TTE 001

**Enhancing Tourist Transport Service
Experience: Factors influencing customer
satisfaction**

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Abstract

Transportation accounts for a significant portion of tourism services, and improving its quality directly translates into improved overall tourism service quality. Many scientists have proven in their research that transport and tourism services play a significant role in the country's economic development. Transportation services offered to tourists are diverse, with transfers being the most common. The number of transfer service providers is growing daily, and competition among them is fierce. The main goal of our study was to improve the performance of transportation service providers for tourists. To this end, we analyzed the factors influencing customers' choice of transfer services.

During the study, we collected opinions from over 400 respondents via a questionnaire. Based on this, we selected factors that influence customer choice. By assigning each factor a rating on a 5-point scale, we determined which factor plays the most significant role in the choice process. According to the study, the two most influential factors in customer choice are "safety" and "driver competence." The gender, age, purpose of travel, and place of origin were also studied separately. This is the basis for analyzing which customer types the company should focus its marketing on. Also, to make the research more powerful, the

analysis was conducted between two companies, and their results were analyzed. According to it, the company with better driver treatment had a higher percentage of customers re-selecting the service, even though the service price was higher than that of the second company. We also analyzed the relationships between these factors. The results of this study will be useful for the company's efforts to increase customer acquisition, increase repeat customer retention, and develop future plans.

Based on the research findings, we developed measures for companies to implement. Since the management systems and organizational structures of transfer service providers are largely similar, we believe the research conducted at these two companies will be useful for other companies as well.

Key words: tourism, travel, transport, transfer

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