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INTERNATIONAL CONFERENCE 2024

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Editorial

We are delighted to extend a warm welcome to all participants attending the International Conference 2024 on 13th – 14th December 2024. This conference provides a vital platform for researchers, students, academicians, and industry professionals from all over the world to share their latest research results and development activities in multidisciplinary fields. It offers delegates an opportunity to exchange new ideas and experiences, establish business or research relationships, and explore global collaborations.

The proceedings for International Conference 2024 contain the most up-to-date, comprehensive, and globally relevant knowledge across various disciplines. All submitted papers underwent rigorous peer-reviewing by 2-4 expert referees, and the papers included in these proceedings were selected for their quality and relevance to the conference. We are confident that these proceedings will not only provide readers with a broad overview of the latest research results but also serve as a valuable summary and reference for further studies.

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

Since September 2024, the Organizing Committee has received more than 45 manuscript papers, covering various aspects of multidisciplinary research. After review, approximately 25 papers were selected for inclusion in the proceedings of International Conference 2024.

We thank all participants for their significant contribution to the success of the conference. Our gratitude extends to the keynote speakers, individual speakers, technical program committee, reviewers, and the organizing committee for their efforts in making this conference a reality.

Acknowledgement

The International Conference 2024, was successfully held in 13th – 14th December 2024. We extend our heartfelt gratitude to our colleagues, staff, professors, reviewers, and members of the organizing committee for their unwavering support in making this conference a success.

We would also like to thank all the participants who traveled far and wide to attend this conference and those who attended the event virtually, making it a truly global event. This conference provided a platform for students, professionals, researchers, and scientists to share their latest research and developments in various disciplines.

The aim of the conference was to promote research and development activities and to encourage scientific information exchange between researchers, developers, professionals, students, and practitioners from all around the world. Once again, we thank everyone who contributed to making this conference a resounding success.

Sukumar Sen
Program Manager
Research Plus (RP)

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Teachers' Perspectives on Integrating Adaptive Gamification Applications into Science Teaching

Stamatios Papadakis

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Abstract:

This study explores the views of six teachers on the use of adaptive gamification environments in science education and the professional development program they had followed. Specifically, teachers in this study were interviewed after receiving training based on the Technological Pedagogical and Science Knowledge (TPASK) model and employed an adaptive gamification environment to teach scientific concepts regarding the water cycle. The findings showcase teachers' views regarding the benefits and cons of utilizing the application in science education, possible improvements to the app and their attitudes towards the professional training program they followed. These findings provide support for the development of adaptive gamification application and for the need to design and implement appropriate training programs for current and future teachers.

Keywords:

Adaptive Gamification, Teacher perspectives, Science education.

Development of ANN MQOD for Online Defect Detection in Injection Molding

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Abstract:

In the fast-changing world of modern manufacturing, especially within the plastic injection molding industry, ensuring high quality and efficiency is crucial. The adoption of Artificial Intelligence (AI) and Internet of Things (IoT) technologies brings transformative potential to improve manufacturing processes, prompting this study. This paper introduces the development of a novel e-Dart based Artificial Neural Network system, named ANN MQOD, specifically designed for real-time online defect detection for two quality characteristics in injection molding processes. Utilizing the e-Dart system, which harnesses in-mold sensors in an injection molding machine, the ANN-MQOD system can predict critical quality characteristics (both weights and diameters) in real-time. The proposed ANN-MQOD system has demonstrated remarkable precision in detecting defects, achieving 99.97% accuracy for weight prediction and 99.94% accuracy for diameter prediction. These metrics significantly reduce the need for manual inspection and enhance process efficiency. The successful deployment of this system underscores the immense potential of integrating AI and IoT technologies to foster intelligent, adaptive manufacturing processes.

Leveraging Natural Plant Extracts for Cutting-Edge Cancer Therapies: A Case Study

Prof. Sam Mashele

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Abstract:

Cancer treatment advancements have dramatically improved patient outcomes. However, traditional therapies such as chemotherapy are often accompanied by significant toxicity and debilitating side effects. The demand for alternative, safer cancer therapies has led to exploring plant-based extracts, which offer targeted cytotoxic effects with reduced harm to healthy cells. This paper presents a novel plant extract with selective cytotoxicity against specific cancer cell lines, notably breast (MCF7) and renal (TK10) cells, and evaluates its potency, cost-effectiveness, and market potential compared to traditional chemotherapy drugs like Paclitaxel and Vincristine.

Linking Leadership, Internationalization and Innovation in the University of the Basque Country

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Abstract:

The universities within our context, as part of the European Higher Education Area, we must offer our service with the highest quality standards. There are many areas in which we aim to improve teaching and research. However, there are also many obstacles to achieve excellence at the university. Excessive bureaucratization is one of them, among many others. Bureaucratization forces the teaching staff to dedicate much of their time to templates and management protocols. Time, is a precious asset at the university. That is why more and more imaginative measures are needed to achieve quality standards and promote innovation. The purpose of this paper is to show the he way in which the Law School of the University of the Basque Country aims to link leadership, educational innovation and internationalization strategy through specific activities that it has implemented during concrete activities put into practice during the year 2024 in the area of international relations.

Evaluation of Existing Culvert Hydraulic Design Using Remote Sensing: A QGIS Approach

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Abstract:

Culverts are mainly designed to allow for rainfall-runoff and flood water to flow without damaging traffic ways. They are common structures designed as a protection structure against flood water. If the runoff quantities exceed the capacity of the culvert, it may cause damage and threats to the vehicles and human lives. Hence, it must be ensured that the capacity of the culverts is higher than the estimated runoff of the watershed. This study evaluates the effectiveness of a culvert that is constructed on Wadi Ahin in Sohar, Sultanate of Oman. The peak flow of the wadi is estimated compared to the estimated capacity of the existing culvert. Then it is determined if the constructed culvert can accommodate the direct peak runoff flow or not. The culvert and watershed data is collected and processed using QGIS software. The rainfall data is determined through the Global Satellite Mapping of Precipitation real time version (GSMaP_NRT), which is a satellite product created by Japan Aerospace Exploration Agency (JAXA). Results show the capacity of the culvert was 218.9% in comparison to the peak runoff flow determined by the flood frequency analysis. Showing that the design of the culvert is sufficient but not economical. The results of this study can assist decision-makers in the design of culverts as well as support sustainable construction practices.

Keywords:

Culvert, Flood, GSMaP_NRT, QGIS.

Enhancing the Performance of PVC/PMMA Polymer Blend Through Hybrid Nanofiller of TiO2 NPs/GNPs for Capacitive Energy Storage Applications

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Abstract:

Polyvinyl chloride (PVC) and polymethyl methacrylate (PMMA) have been used as polymeric matrices for the synthesis of polymeric nanocomposite films that incorporate titanium oxide nanoparticles (TiO_2 NPs) and graphite nanoplatelets (GNPs) as nanofillers. Based on TEM studies, TiO_2 nanoparticles have a tetragonal anatase phase, ranging in size from 15 to 60 nm, whereas GNPs have a nanoplatelet-like shape, varying in thickness from 10 to 20 nm. XRD analysis shows that PVC/PMMA polymer nanocomposite samples have less crystallinity when added with TiO_2 NPs and GNPs. Infrared Fourier analysis (FT-IR) indicated a complex interaction between the PVC/PMMA blend and both GNPs and TiO_2 NPs. The UV/visible spectrum of the PVC/PMMA blend showed two absorbance peaks at 279 and 223 nm which may result from the $n \rightarrow \pi^*$ and $\pi \rightarrow \pi^*$ transitions. Moreover, optical bandgaps were reduced for both indirect and direct transitions when TiO_2 NPs and GNPs were added. AC electrical conductivity and dielectric properties of the samples were measured at room temperature. Results indicated a significant increase in conductivity after filling from 2.6 x 10^{-14} S/cm for pure PVC/PMMA to 7.3 x 10^{-6} S/cm for PVC/PMMA-TiO_2/GNPs nanocomposite. In addition, high nanoparticle concentrations lead to higher composite dielectric loss and dielectric constants. These findings suggest the possibility of using the prepared nanocomposites in capacitive energy storage and optoelectronic devices.

Keywords:

PMMA, PVC, TiO2 NPs, GNPs, Dielectric functions, AC conductivity.

Political Science in the Dynamics of the 21st Century World

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Abstract:

People's lives today are the world situation of the 21st century or globalization embeded with technology and advance of communication that life in modern society is more or less closely related to each other. Nowadays, most people have been bonded within social networks that communicate via online in various forms such as Facebook, Instagram, Line, Twitter, etc. Therefore, social, economic and political phenomena are interconnected. and inevitably affects every life in world society. This situation has changed the way of life of people today, people are living in more comfortable yet more complicated. Therefore, it is necessary to improve our education system to be in line with changes which accordingly create positive outcome on improving the quality of life in society in order achieve the objective and the goal of every science today.

Hence, the framework for learning in the 21st century must be adjusted accordingly to focus on learners accumulating knowledge as well as experience and skills for their lives. Particularly in terms of content, the curriculum should put emphasis not only on developing reading, writing, and numeracy but also integrating 3 necessary skills including with learning and innovation skills, information skills and media and technology skill, and life and career skills.

To improve the curriculum, the program had considered problems occurred in last five years, phenomenon of political administration as well as some social and economic factors in the past into an analysis so as to design the curriculum to be in line with the changing situation. Especially the critical situation of the outbreak of coronavirus 2019 (COVID-19) that has led to changes in many dimensions which resulted in changes ways of living in modern world.

In terms of teaching and learning the situation of the outbreak of coronavirus 2019 has resulted in teaching and learning at all levels having to change teaching methods from in class (In class) to online learning (Online) and hybrid. However, the current curricula of many educational institutions do not have a curriculum drafted to accommodate this situation, and teaching and learning is organized in online and hybrid formats, resulting in teaching and learning being carried out within a limited framework. that affects the quality of teaching and learning which creates direct impact on students in developing their knowledge including with general and specific knowledge, life and career skills, learning skills, creativity, and developing their abilities in other particular skills. It could say that there were some positive things about the outbreak of coronavirus 2019 relating to the students' improvement of information, media and technology skills nonetheless the ability has been blocked by various conditions especially devices and internet network. Among these positive progress in education, this case reflects the problem of inequality in access to educational opportunities which is considered another dimension and a new dimension that has not been considered much in the past.

From the background rationale mentioned above, it is imperative that every new curriculum Including the Bachelor of Political Science program must analyze changes and problems from both domestic and global situations especially under the circumstances of dynamic in 21st Century and in afterward of the outbreak of coronavirus 2019 which accordingly creates a huge challenge for designing a new curriculum. Especially when asking about "what is the new way of the world of political science?" and

“what is the important answer in finding a solution to the new way of life of people in political society after the pandemic?”, and most importantly, to answer what are the characteristics of political science graduates in the present and future world situations that will make graduates who graduate from the program in demand in the labor market.

Influence of Service Quality Standards as a Marketing Strategy on Organisation Performance of Private Hospitals in Uasin Gishu County, Kenya

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Abstract:

Private health sector has received much attention in recent times and are crucial in expansion of access to quality healthcare. Majority of private hospitals in the country are undergoing performance challenges due to inability to retain and satisfy their customers. Because of the improvements in health provision by county governments, private hospitals are facing increasing performance challenges due shortage of human resource personnel, shortage of medical services and inadequate medical infrastructure. Therefore, this study sought to find how the level of implementation of service quality standards and organisation performance of private hospitals. This study is supported by Service Quality (SERVQUAL) model. The study is quantitative in nature guided by correlational research design. The study was conducted in Eldoret town covering major hospitals classified from Level 3B and above. The target population involved 1875 employees from 25 private hospitals in Eldoret town. A sample size of 319 respondents was chosen through Cochran sample size formula to be the representative of the whole population. The respondents (319) out of 1875 were selected using stratified and random sampling technique. The research instrument used in data collection was questionnaire. Data analysis was undertaken through use of descriptive statistics; frequencies, percentages, means and standard deviation and inferential statistics; correlation and linear regression with the help of Statistical Product and Service Solutions computer software. Findings showed service quality standards (β=0.240) had a significant positive effect on the performance of private hospitals in Eldoret town. It is concluded that performance of hospitals dependent on the extent to which service quality standards were implemented by the management of private hospitals in Eldoret. The study recommends that private hospitals need to regularly collect customers' feedback to improve on the standards of services/ The study findings provide solutions to private hospitals on the way to improve on their performance through adoption of quality healthcare service strategies in delivery of services to patients.

Keywords:

Service, Quality, Standards, Performance, Private, Hospital.

Hydrological Sensitivity of Commercial Fish Production Potentiality Around Bangladesh

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Abstract:

Under future hydro-climatic changes and modifications of river discharge and water depth are expected to result in potential production shifts of riverine organisms, including commercial fin fish. Bangladesh is one of the world's leading fish producing countries with a total production of 4.3 Million MT in FY 2017-18, in which river system contributes only about 7.5%. The fish production module underpins the estimation of riverine fish production of Bangladesh based on the discharge and water depth at different hydrological nodal points[1]. We project changes for the highly valued commercial fish, the Hilsa Shad (*Tenualosa ilisha*), by applying a bio-hydrological model based on the Bayesian theorem considering 248 bio-hydrological variables, among which 170 variables linked with discharge and 78 with water depth. The hilsa production potentiality changes projected from the recent past (1985–2017) to two futures (2030 and 2050) were calculated for riverine waters around Bangladesh under four scenarios based on the climate change and economic condition. Our model projected that some districts, such as Bhola, Noakhali, Cumilla, and Chandpur, would highly be sensitized with the hydrological shifts under four scenarios. These changes might drive significant changes in hilsa production in future.

Keywords:

Riverine Ecosystem, Fish Production Potentiality, Climate Change Scenarios, Bio-hydrological Modelling.

[1] Nodal Points: Hydrological network nodes

Building Smarter Roads: Sustainable Infrastructure with Ready-Made Asphalt Blocks

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Abstract:

The construction industry is one of the significant contributors to Greenhouse gas emissions; hence, it has become under pressure to adopt sustainable practices and reduce the environment. At this point, readymade asphalt blocks are an alternative to traditional asphalt mixtures to enhance the efficiency and sustainability of the road construction project. Considering this fact, this study investigated the potential of readymade asphalt blocks for supporting sustainable infrastructure by which environmental and regulatory forms can be achieved to align with the vision of 2030 and COP28 sustainability goals. This work involved semi-structured interviews with industry experts to investigate trends in sustainable construction. The findings suggest that these blocks can expedite construction timelines and reduce carbon footprints. However, challenges like high cost, logistical requirements, and skilled labour demand can hinder the white spray direction of these sustainable materials for road construction; for that, a road map has been provided to influence readymade blocks that align with sustainable development goals.

Keywords:

Smarter roads, Construction industry, Asphalt blocks, Sustainability.

KAPSUL AC+ MADANI: Enhances Locomotor and Cognitive Skills of Students with Special Educational Needs (MBPK) and Mainstream Students at SK Bandar Rinching

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Abstract:

KAPSUL AC+ MADANI is a multisensory area developed specifically for Students with Special Educational Needs (MBPK). This is part of the effort to support the First Shift of the 2023-2025 Education Development Plan, which aims to provide access to quality education for all students regardless of their background or special needs. Early data shows that MBPK students at SK Bandar Rinching have cognitive and physical abilities that are not in line with their chronological age increase. Impaired locomotor skills and cognitive abilities disrupt the teaching and learning process. The design of this area aims to support students' motor movement, self-capability, and social interaction, while focusing on the psychosocial and cognitive aspects of MBPK students (148 students), mainstream students (2650 students), and preschool students (50 students). This study uses an Action Research method, involving continuous cycles of planning, implementation, observation, and reflection, to evaluate the effectiveness of the KAPSUL AC+ MADANI in improving students' academic and co-curricular performance. Narrative Analysis is used as the main approach to deeply understand the changes that occur in the students. The findings of this study can also help teachers plan and implement more effective and individualized teaching strategies. The use of the KAPSUL AC+ MADANI has the potential to become an intervention model that can be applied in other schools, thereby improving teaching practices in special education.

Keywords:

KAPSUL AC+ MADANI, Locomotor, Cognitive Skills, Special Education Needs.

Bibliometric Analysis for Community Potential Through Entrepreneurship: 2019 to 2024

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Abstract:

Leveraging community potential refers to the process of discovering and utilising a community's resources and skills for a variety of reasons. This study presents a bibliometric analysis of the research on the potential of entrepreneurship to drive community development from 2019 to 2024. Using bibliometric methodologies, this study examines a wide range of scholarly outputs to determine the intellectual structure of this field. This methodology finds crucial contributors, seminal works, research focal points, and emerging themes in the field by quantitatively examining publication outputs, citation networks, collaboration patterns, and keyword co-occurrences. By synthesizing and visualizing the bibliographic data, this study provides a comprehensive picture of the knowledge landscape, allowing researchers, practitioners, and policymakers to navigate the complexities of community potential through entrepreneurship and foster continuous improvement initiatives. This study provides a road map for future investigations to improve community development program through entrepreneurship, indicating significant research gaps and areas ripe for discovery. Furthermore, the analysis gives information on the global distribution of research efforts, allowing for international collaborations and knowledge exchange to propel collective growth. It informs strategic decision-making processes for entrepreneur to boost their strategies to provide superior products and services to customers.

Keywords:

Bibliometric analysis, Community potential, Entrepreneurship, Trends, Patterns.

Green Human Resource Management (GHRM) and Sustainability: Bibliometric Analysis

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Abstract:

This study evaluates green human resource management studies toward sustainability, depicts emerging themes, and offers critical discussions for theory development and future research. The research topics development and performance trends in this study area are still insufficient and unclear. A bibliometric analysis was conducted to explore research trends regarding green human resource management and sustainability. Data on publications output was identified based on the Web of Science (WoS) database's research articles from 2015 to 2024. This study used VOSviewer to analyse collaboration networks among authors, countries, institutions, and co-occurrence analysis of keywords in three defined periods. 535 papers on green human resource management studies related to sustainability were identified. The valuable results obtained from this study can help scholars better understand the research development trends and research hotspots in the field of green human resource management and provide direction for future research.

Keywords:

Green Human Resource Management, Sustainability, Bibliometric, Web of Science.

Rational Anchoring: The Impact of Borrowing History on Debt Contracting

Yang Wang

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Abstract:

This paper studies the rational anchoring effect in the credit market. I find that a firm's historical cost asymmetrically affects its current loan cost. When the average credit spread has fallen since the firm's last borrowing, banks anchor to the previously high cost and charge more than those justified by the firm fundamentals. However, when the average credit spread has risen since the firm's last borrowing, the firm's loan cost is not affected by its borrowing history. The current cost does not anchor to the firm's previous low cost, and the firm does not pay less than it should pay. The asymmetric anchoring effect on the current loan cost also holds at the firm level. This finding suggests that banks strategically refer to the previous high spreads in loan pricing. Further analyses show that the relationship becomes stronger when banks have more information advantage and when firms are more bank dependent. Overall, the result suggests that the observed anchoring behavior in the financial market can also be rational and strategic.

JEL Classification: G32, G41.

Keywords:

Rational Anchoring, Loan Contracting, Bargaining Power, Information Monopoly.

Privacy in the Artificial Intelligence World: A Comprehensive Review of Current Research

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Abstract:

The intersection of artificial intelligence (AI) and privacy presents significant challenges, particularly as AI systems become integral into sectors such as finance, healthcare, and online social networks. This research examines the complex relationship between AI and privacy, emphasizing the need for a clear view of these in different domains. By reviewing over 100 research papers, we categorize privacy concerns across four primary dimensions with the following values: a) Domain (Technological): LLM, ML, NLP, Computer Vision, Speech Recognition, IoT, OSN, D/B; b) Actions: attacks, defense, awareness, vulnerabilities, threats, regulations; c) Approach: Privacy by Design (PbD), Privacy Shell, Hybrid (PbD+Shell), Advisory, PPDM; and d) AI-Privacy relation direction: Harnessing AI to protect privacy, AI as a threat to privacy, AI usage that includes privacy, applying privacy to AI. We also used a novel approach based on Graph Database to optimize the presentation of the results and enable efficient search according to multiple keys, as well as later updates by the reader itself. This study provides a comprehensive taxonomy for understanding and addressing privacy issues in AI, offering insights critical for researchers, policymakers, and practitioners in navigating the evolving landscape of AI and privacy.

Keywords:

Artificial Intelligence (AI), Privacy, Machine Learning (ML).

The Image of a Researcher in Asian Countries: From Traditional Stereotypes to Modern Scientific Communication

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Abstract:

The article presents a comparative analysis on the evaluation of the image of a researcher in Asian countries. Theoretical foundations of the concept of image, and factors influencing the perception of the image of a modern researcher are considered by students. The purpose of this article is to compare the perception of the image of a researcher in Kazakhstan and other Asian countries.

Based on the environmental approach and the theory of constructs, the authors have developed a methodology for assessing a researcher's image. This methodology is based on George Kelly's theory of personal constructs, which allows for the evaluation of a researcher's image as a complex phenomenon. Using a structural approach, the phenomenon of a researcher's image has been decomposed into five constructs: cognitive, emotional-affective, moral-ethical, social, and informational-communicative constructs. The constructs that make up the image of a researcher are rarely observable directly due to their abstractness, lack of clarity, and precision.

Studies based on Asian students' perceptions of researchers have shown that their perceptions and cognitive representations of researchers have a strong influence on their attitudes toward science and future career choices. The importance of developing students' perceptions of science as well as a positive image of researchers is emphasized.

The analysis of Asian countries revealed general trends in the formation of the image of a researcher and specific features in the perception of researchers by society such as the persistence of stereotypes in society concerning researchers and their activities; misinformation and politicization of science; and a lack of openness within the scientific community.

The results indicate that the assessment of the image of a researcher in Kazakhstan, as perceived by students, is relatively average, which suggests a crisis of confidence in researchers in Kazakhstan. The authors of the article raise questions about the necessity of popularizing scientific knowledge, particularly among the younger generation, and the development and discoveries by modern technological means of communication. This will help overcome the crisis of confidence in science, establish a dialogue with society, and foster a positive perception of researchers, which could potentially motivate students toward science-related careers in the future.

Keywords:

Image of a researcher, perception, popularization of science, crisis of confidence, digital technologies, scientific communication, stereotypes.

FaST sOil REstoration with biochaR as a micrObiOMe Carrier

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Abstract:

Climate change intensifies soil salinization through drought and inefficient water use, reducing crop productivity and bacterial diversity while disrupting nutrient cycling. Urban soils, altered by human activities, face challenges in sustaining essential ecosystem services. Biochar amendment offers a promising solution for soil restoration due to its high water and nutrient retention, support for beneficial microbes, and ability to enhance soil quality. Acting as a long-term carbon sink, biochar contributes to soil stability for centuries. Pre-conditioning biochar with nutrients or microbes can further improve its nutrient-holding capacity, aiding in degraded soil restoration, carbon sequestration, and agricultural sustainability.

A related study on urban degraded soil in Bari, Italy, analyzed bacterial communities considering spatial variability, depth, and sampling position. Soil samples from 0-10 cm and 10-20 cm depths revealed depth-dependent microbial diversity: oxygen-tolerant bacteria dominated surface layers, while anaerobic species thrived deeper. Edge-specific bacterial OTUs highlighted ecological variability compared to the center, which showed greater microbial uniformity. These findings underscore how depth and location significantly shape bacterial diversity, reflecting local environmental conditions and influencing soil health. Together, these insights emphasize biochar’s potential in mitigating climate impacts on soils and supporting microbial ecosystems in urban and agricultural settings.

Keywords:

Bacterial diversity, Biochar amendment, Urban soil restoration, Carbon sequestration.

Development of a Model to Detect the Validity of Indonesian Reviews on E-Commerce Products Using Bert and Smart Approaches

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Abstract:

Ensuring customer satisfaction in e-commerce relies heavily on the accuracy of product reviews. The validity of reviews is critical as accurate and reliable reviews significantly influence consumer decision-making. An effective method to ensure the validity of reviews is through sentiment analysis, specifically on open-ended questions, and comparing them with Likert Scale values. This approach helps in identifying inconsistent or manipulative reviews and provides deeper insights into overall customer satisfaction. This study used BERT and SMART approaches to achieve high accuracy in consumer feedback sentiment analysis. The results showed that IndoBERT, among the various methods, produced the highest accuracy compared to BERT, DistilBERT, ALBERT, and RoBERTa. Notably, combining IndoBERT with SMART achieved the best overall accuracy, outperforming other combinations. Although SMART slightly improved accuracy by around 1%, further research is needed to evaluate the impact on processing time of this approach.

Keywords:

BERT, SMART, Sentiment Analysis, IndoBERT, E-Commerce.

Modelling Cross Dependence in BINAR(1) Models

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Abstract:

The bivariate integer-valued auto-regressive process of order one (BINAR(1)) is an extension of the classical integer-valued model from McKenzie (86). The crucial components in the BINAR(1) are the paired innovations and the survival part. However, the survival structure depends on the thinning operator with constant or random coefficient. These two components are essential to model the inter dependence between the two series. In the initial BINAR(1) proposed by Pedeli and Karlis (2011), the inter dependence was induced from the paired innovations only. The question of interest is whether the paired innovations can capture the total dependence between the series. Alternatively, if allowing the thinning coefficients to be pairwise distributed, ideally, bivariate beta distributed and on the other hand, innovations are also jointly distributed, we can expect that the resulting BINAR(1) model can capture the total dependence between the series. This research proposes a novel BINAR(1) process that allows for both paired thinnings and innovations, keeping the diagonal BINAR structure in hand. Evidently, this proposed BINAR(1) needs to compete among the existing BINAR(1) models. Thus, Monte Carlo simulation experiments and real-life data applications to football will be performed to validate the workability and goodness of fit of the new BINAR(1) process.

Keywords:

Bivariate, Random, Thinning, Innovations, Survival.

Multicultural Integration Centers in Poland. Architectural Issue

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Abstract:

In the face of the growing influx of migrants and refugees to Poland, especially due to the ongoing conflict in Ukraine, the architectural design of multicultural integration centers has become essential for fostering inclusion and building social connections. Previously, Poland did not face such extensive migration flows, making the current demand for inclusive spaces more pressing. This article examines the architectural challenges and opportunities related to creating spaces adapted to diverse cultural needs, which simultaneously promote integration and intercultural interaction. Multicultural centers in Poland are often adapted from existing buildings, resulting in spatial limitations and a lack of cultural sensitivity. Research indicates that new design strategies are needed, focusing on inclusivity, spatial flexibility, and cultural symbolism to effectively meet the needs of multicultural communities. Based on an analysis of existing integration centers, the article identifies key architectural elements such as modular layouts, accessible community areas, and culturally sensitive details that enhance the centers' function as places of integration. The article also emphasizes the importance of participatory design, involving both local communities and migrants in the planning process to address their diverse cultural and social expectations. Finally, guidelines are proposed for architects and urban planners, suggesting innovative approaches to designing integration spaces in Poland.

Keywords:

Multicultural integration, architectural design, social inclusion, participatory planning, cultural sensitivity.

Challenges and Barriers to AI Adoption in Innovation Management: A Bibliometric Review

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Abstract:

Artificial intelligence (AI) is rapidly changing approaches to innovation management, providing companies with new tools to increase productivity, improve decision-making and create new products and services. The objective of this study is to conduct a bibliometric analysis of publications in the field of AI and innovation management to identify key trends, influential articles and emerging topics. The research methodology is based on the Biblioshiny tool (R-package) for bibliometric analysis, which made it possible to estimate the number of publications, their citation rate, thematic clusters and key authors. The data for the analysis were collected from the Scopus database, covering publications from 1989 to 2024. The analysis revealed that since 2019 there has been a sharp increase in the number of publications associated with the active implementation of AI in business processes and the acceleration of digital transformation. Among the key drivers of AI implementation, cost efficiency and improved decision-making stand out, but there are also significant barriers, such as the lack of an implementation strategy and trust in AI. This study underscores the urgent need for further exploration of strategic approaches to integrating AI and change management and the social and ethical aspects of its implementation.

Taught to Respond in an Emergency: Teachers as First Responders in Cases of Childhood Trauma

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Abstract:

New teachers may actually begin their careers unaware of the ways they are needed beyond instructional and emotional, but truly as *first responders* to students in trauma. The idea of teachers as first responders is not completely new (eg., Butz, 2018; Anderson, 2020; Gunther, 2023). The need to include strategies for supporting PK-12 students in trauma within the traditional teacher preparation program may be though. With school-aged children spending more waking hours at school with their teachers than they do with their parents (Minkel, 2018), and teachers being the first to possibly notice a child as traumatized, preparing new teachers to address the needs of these very students is imperative. One particular strategy, the use of developmental bibliotherapy (DB), has been shown effective as a support to children in trauma (De Vries et al., 2017). While this method has long been employed by or suggested to inservice teachers (Pardeck, 1995), it is either not often taught in the coursework of teacher preparation programs or not studied for research. The research question guiding this study is: In what ways can a workshop in bibliotherapy promote self-efficacy for the practice for undergraduates in the field of education and related fields?

A Multi-Criteria Decision Approach to Measure Rail Transit Station Efficiency in Urban Areas

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Abstract:

Planning and constructing public transportation (PT) lines, especially in urban areas, require careful consideration due to the many factors involved in transportation engineering. Evaluating the performance of stations, particularly for railway lines, necessitates taking both costs and benefits into account. This study examines the performance of new rail transit (RT) stations in an urban area by considering structural costs and key benefits such as travel demand and service frequency. Specifically, our analysis focuses on construction costs as the primary expense, while the number of peak-hour trips, average speed, and transit service frequency are treated as the main benefits. We employ the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS), a multi-criteria decision-making (MCDM) methodology, to assess the effectiveness of RT stations in a large urban rail system. Notably, this technique has not previously been applied to the particular RT stations which are under our consideration. Our case study evaluates 20 stations on a tram line in a major city in Türkiye, offering 20 alternatives for analysis. The results highlight variations in station efficiency and provide recommendations for improvement. By addressing critical factors and applying MCDM approaches, this research seeks to enhance PT services in large cities, contributing to the development of a more effective and inclusive urban RT system.

Keywords:

Public transportation, multi-criteria decision-making, TOPSIS, transit stations.

Fostering Critical Thinking in Primary Education: A Case Study Using Artificial Intelligence Tools

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Abstract:

The rapid pace of social and technological progress, combined with a constant influx of information and ever-changing conditions in daily life, has elevated the need for critical thinking skills as essential for students' personal, social, and professional growth. The ability to interpret, analyze, and adapt to new information is increasingly surpassing the value of specialized knowledge. To meet these demands, educators are creating dynamic learning environments and adopting innovative teaching strategies aimed at fostering critical and adaptive thinking. Artificial intelligence (AI) is a transformative tool from computer science that has quickly become integral to this shift. It encompasses a wide range of functions, from voice recognition and problem-solving to decision-making and data analysis, replicating human-like intelligence in machines with superior memory, processing speed, and without subjective bias. Within educational settings, AI can enhance critical thinking by: a) offering students instant feedback on their work, b) aiding them in identifying and correcting errors, and c) advancing their cognitive skills. This study examines the potential of AI tools to cultivate critical thinking in primary school students, with an emphasis on sixth-grade learners and their unique developmental needs. As part of a larger doctoral research project, this ongoing study has implemented a specific AI-based example in a primary school setting, showcasing effective practices and promising preliminary results. This research uniquely integrates AI to foster critical thinking, marking the first time this approach has been used to nurture critical thinking in an elementary education context.

Value Chain Analysis of Thai Rubber Products Exported to the European Union: Readiness for EUDR and Potential for Profit Growth

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Abstract:

Thailand's rubber industry is a significant source of employment and revenue for the country, with rubber plantations expanding to 24.2 million rai by 2022. The majority of rubber production is exported to international markets, particularly the European Union (EU), which is a key export destination for Thai rubber. However, the implementation of the EU Deforestation Regulation (EUDR) has posed challenges to exports, as it requires verification of the origin of rubber products to ensure they are not sourced from deforested areas. This research assesses the readiness of Thailand's rubber supply chain to comply with EUDR requirements. The findings indicate that increasing the use of traceability technology, developing certification systems, and fostering collaboration among stakeholders are crucial factors in enhancing the competitiveness and sustainability of the supply chain. Moreover, compliance with EUDR opens up new market opportunities for Thai rubber exporters in the European Union.

Keywords:

Thailand's rubber industry, EUDR compliance, sustainability, deforestation-free supply chain, market opportunities.