ICCCE

# ICCCE 2025

## 3rd International Conference on Computer, Cybernetics and Education

**27th-28th February, 2025 | Jakarta, Indonesia**



**"Empowering Education through Digital Innovation: Advancing Sustainable Development Goals"**

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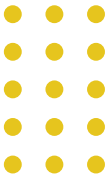
3rd International Conference on Computer, Cybernetics and Education (ICCCE-2025), Jakarta, Indonesia



ISBN 978-81-976209-6-6







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# Empowering Education through Digital Innovation: Advancing Sustainable Development Goals




ICCCE 2025

# Preface

We are delighted to extend a warm welcome to all participants attending 3rd International Conference on Computer, Cybernetics and Education (ICCCE-2025) organized by Alliance of Indonesian Faculty of Economics and Private Business (AFEBSI)-Indonesia, PT. Mega Mas Abadi Consultant and Training Jakarta-Indonesia, Pramita Indonesia University-Indonesia and IFERP Academy-Indonesia Society taking place in Jakarta, Indonesia on February 27th-28th, 2025. This conference provides a vital platform for researchers, students, academicians, and industry professionals from all over the world to share their latest research results and development activities in the field of Computer, Cybernetics and Education. It offers delegates an opportunity to exchange new ideas and experiences, establish business or research relationships, and explore global collaborations.

The proceedings for ICCCE-2025 contain the most up-to-date, comprehensive, and globally relevant knowledge in the field of Computer, Cybernetics and Education. All submitted papers were subject to rigorous peer-reviewing by 2-4 expert referees, and the papers included in these proceedings have been selected for their quality and relevance to the conference. We are confident that these proceedings will not only provide readers with a broad overview of the latest research results in Computer, Cybernetics and Education but also serve as a valuable summary and reference for further research in this field.

We are grateful for the support of many universities and research institutes, whose contributions were vital to the success of this conference. We extend our sincerest gratitude and highest respect to the many professors who played an important role in the review process, providing valuable feedback and suggestions to authors to improve their work. We also extend our appreciation to the external reviewers for providing additional support in the review process and to the authors for contributing their research results to the ICCCE-2025.

Since September 2024, the Organizing Committees have received more than 200+ manuscript papers, covering all aspects of ICCCE-2025. After review, approximately 90+ papers were selected for inclusion in the proceedings of ICCCE-2025. We would like to thank all participants at the conference for their significant contribution to its success.

We express our gratitude to the keynote and individual speakers and all participating authors for their dedication and hard work. We also sincerely appreciate the efforts of the technical program committee and all reviewers, whose contributions made this conference possible. Finally, we extend our thanks to all the referees for their constructive comments on all papers, and we express our deepest gratitude to the organizing committee for their tireless work in making this conference a reality.

# About ICCCE 2025



The 3rd International Conference on Computer, Cybernetics, and Education (ICCCE-2025) is set to take place on February 27th and 28th, 2025, in Jakarta, Indonesia. Organized by IFERP Academy in collaboration with the Alliance of Indonesian Faculty of Economics and Private Business (AFEBSI), PT. Mega Mas Abadi Consultant and Training Jakarta, Indonesia. this conference aims to bring together scholars, educators, and industry experts to explore the intersection of technology and education. The ICCCE will focus on the latest advancements in computer science and cybernetics, discussing their implications for educational practices and outcomes. Participants will engage in insightful discussions, share innovative research, and collaborate on strategies to integrate digital tools into educational frameworks effectively. This conference not only aims to address contemporary challenges in education but also emphasizes the importance of sustainable development goals, empowering educators and learners to create inclusive and effective learning environments. Join us at ICCCE for a transformative experience that aims to shape the future of education through technology.

We hope that the extensive scientific programme lives up to your expectations and that attending the conference will provide you the chance to network with coworkers, friends, and recognised specialists from across the world. We remain optimistic that the hybrid nature of 3rd International Conference on Computer, Cybernetics and Education (ICCCE-2025) will offer a free forum for debating all facets of matter at the nanoscale, exchanging ideas, igniting collaborations, and creating new networks despite the challenging times we are experiencing.

The Scientific Committee is putting together an engaging schedule that will cover all of these exciting aspects of the International Conference on Computer, Cybernetics and Education and we'll have excellent keynote speakers, a fine Organizing Committee that will assist you before and during the event. The scientific conference includes keynote speakers, oral presentations, poster sessions, discussion forums, and workshops. This is a great chance to network in ICCCE-2025, share knowledge with a big audience, and present your research findings.

# About IFERP Academy



Institute For Educational Research and Publication (IFERP) is a non-profitable professional association meant for research and development in the fields of Engineering, Science & Technology. With a global presence, IFERP is committed to advancing knowledge across diverse disciplines through international conferences, workshops, and scholarly publications. We provide help, assistance, and direction in preparation for SCI and SCIE journal publishing. These journals undergo a rigorous peer-review process to ensure the quality publication of the most fascinating findings on Arts & Science, Management, Engineering, and Technology.

IFERP has established robust scientific, academic, and industry networks throughout Asia, the Middle East, and Europe. Some of the countries that IFERP has its presence, include Iraq, Maldives, Thailand, Malaysia, Singapore, Philippines, Indonesia, Taiwan, Vietnam, UAE, Australia, Japan, Sri Lanka, Nepal, Ghana, and Africa. As a hub for educational and research initiatives, IFERP plays a pivotal role in shaping the landscape of global academia, fostering innovation, and contributing to the advancement of knowledge across borders.

## Mission & Vision

**Mission:** "Upskilling the knowledge hub through technological innovation and excellence for the benefit of humanity"

**Vision:** "A Digitally equipped robust, dynamic & swift professional community integrating academics & industry for upgraded technical knowledge implementation."

## What We Do?

- IFERP believes that there is always a better way to treat the professionals by providing them a world class stage by organizing conferences. We are committed to doing the following activities.
- We encourage convenient access to academic resources and support for all the aspirants and research scholors in urban and rural areas.
- IFERP organizes public education programmes, Workshops, Conferences, Webinars, Seminars, Guest Lectures, Short Term Training Programme, Faculty Development programme in the field of Engineering, Science & Technology.
- IFERP is dedicated to inquisitiveness, innovations and recent trends and developments in the field of Engineering & Technology.
- IFERP believes in knowledge sharing by collaborating with other Universities, organizations/Associations, to bring a better tomorrow.

**MR. A. SIDDTH KUMAR CHHAJER**

**MANAGING DIRECTOR & FOUNDER**

IFERP Academy, Technoarete Group



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

The goal of the 3rd International Conference on Computer, Cybernetics, and Education (ICCCE-2025) is to provide knowledge enrichment and innovative technical exchange between international researchers or scholars and practitioners from the academia and industries in the field of Computer, Cybernetics, and Education.

This conference creates solutions in different ways and to share innovative ideas in the field of Computer, Cybernetics, and Education. ICCCE-2025 provides a world class stage to the Researchers, Professionals, Scientists, Academicians and Students to engage in very challenging conversations, assess the current body of research and determine knowledge and capability gaps.

3rd International Conference on Computer, Cybernetics, and Education (ICCCE-2025) will explore the new horizons of innovations from distinguished Researchers, Scientists and Eminent Authors in academia and industry working for the advancements in Science and Engineering from all over the world. ICCCE-2025 hopes to set the perfect platform for participants to establish careers as successful and globally renowned specialists in the field of Computer, Cybernetics, and Education.

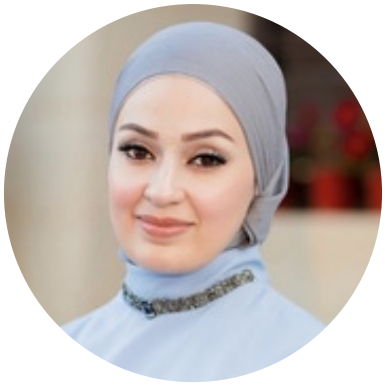
## MR. RUDRA BHANU SATPATHY

**CEO & FOUNDER**

IFERP Academy, Technoarete Group

IFERP is hosting the 3rd International Conference on Computer, Cybernetics, and Education (ICCCE-2025) this year in month of February, 2025. The main objective of ICCCE-2025 is to grant the amazing opportunity to learn about groundbreaking developments in modern industry, talk through difficult workplace scenarios with peers who experience the same pain points and experience enormous growth and development as a professional. There will be no shortage of continuous networking opportunities and informational sessions. The sessions serve as an excellent opportunity to soak up information from widely respected experts.

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



## DR. SUHA KHANFAR

**KEYNOTE SPEAKER**

Executive Office Manager, Shams Al-Iraq for Supply,
Import & Export Co. Ltd., Jordan

Creative professional and collaborator with 15+ years of experience, including 10+ years as an executive manager and lead. Deep expertise in manufacturing processes, materials, and licensing. Skilled in managing both large and small teams, developing budget-sensitive products through innovation and storytelling. Committed to being a global leader in business management, driving sustainable growth through cutting-edge technologies, ethical leadership, and empowering communities.

## DR. MOHD ZAIRUL (ZACK ZAIRUL)

**KEYNOTE SPEAKER**

Deputy Dean
Universiti Putra Malaysia, Malaysia

Assoc. Prof. Ts. Dr. Zack Zairul is a renowned researcher and educator in the field of housing and open building, with over 5 years of experience as an associate professor and lab leader at Universiti Putra Malaysia (UPM). He holds a PhD in Management in the Built Environment from TU Delft, Netherlands, and a Professional Technologist certification from the Malaysian Board of Technologist. His mission is to advance the knowledge and practice of affordable, flexible, and sustainable housing for the Malaysian population, through innovative research, teaching, and training. He has published multiple papers in international journals and conferences, and has trained postgraduate students and professionals in using ATLAS.ti, a powerful software for qualitative data analysis. He is also a member of the Institute of Value Engineering Malaysia and a graduate member of the Lembaga Arkitek Malaysia and Pertubuhan Akitek Malaysia.

## DR. IR. ARWIN DATUMAYA WAHYUDI SUMARI

**KEYNOTE SPEAKER**

Special Staff to the Chief of Staff of the Air Force
Indonesian Air Force - TNI Angkatan Udara, Indonesia



Air First Marshal Asst. Prof. Dr. Ir. ARWIN DATUMAYA WAHYUDI SUMARI, S.T., M.T., IPU, ASEAN Eng., ACPE, APEC Eng. is an Air Force High-ranking Officer who graduated from the Indonesian Air Force (IDAF) Academy with the Adi Makayasa medal, Trophy for being the Best Graduate of the Department of Electronics in 1991, and the Recipient of the Outstanding Officer Award from the Chief of Staff of IDAF in 1996. He holds a series of academic achievements, including a B. Eng. in Electrical Engineering (1996), an M. Eng. in Electrical Engineering (2008), and a Dr. in Electrical Engineering and Informatics (2010), all from the Institut Teknologi Bandung, Indonesia, each earned with Cum Laude honors. His diverse roles encompass heading the Cognitive Artificial Intelligence Research Group (CAIRG), co-founding and serving on the Board of Supervisory of the Indonesia Artificial Intelligence Society (IAIS), and active membership in the Indonesia Cyber Security Forum (ICSF) as Senior Member. He has published more than 300 articles, and keynote speakers at government and non-government agencies, achieved Best Paper Award at home and abroad, has 3 granted patents, 8 registered patents on Knowledge Growing System (KGS) and 72 copyrights on Artificial Intelligence applications and related. His research interests span cognitive artificial intelligence, machine learning, information fusion, pattern recognition, and cybersecurity. Arwin also holds various national and international professional certificates, including Professional Engineer in electrical engineering and flight simulator. Currently, he serves as the Special Staff to the Chief of Staff of the Indonesian Air Force and has been an Adjunct Professor at the State Polytechnic of Malang, Indonesia since 2019. He can be reached through arwin.sumari@polinema.ac.id and arwin.sumari@yahoo.com and his professional web site is at https://www.linkedin.com/in/afm-a-prof-dr-ir-arwin-datumaya-wahyudi-sumari-s-t-m-t-ipu-asean- eng-acpe-apec-eng-a2378169/.

## DR. MUNADHIL ABDUL MUQSITH

**KEYNOTE SPEAKER**

Senior Lecturer and Researcher, Head of the Communication Department
Universitas Pembangunan Nasional Veteran Jakarta, Indonesia

Munadhil graduated from Doctor of Philosophy (P.hD) from RUDN University: Peoples' Friendship University of Russia in 2022 with a very satisfactory distinction with a specialization in International Journalism. Completed a Master of Art in Media Industry and Business (Mercu Buana University Jakarta in 2016) and a Bachelor of Science at the University of Lampung in 2011. Currently serves as Chair of the Communication Science Department, FISIP UPN Veteran Jakarta for the period 2023- 2027 and Head of the Communication Department Postgraduate at FISIP UPN Veteran Jakarta for the period 2022-2026, Indonesia. He is also a senior lecturer, reviewer and researcher at UPN Jakarta. Munadhil will undertake a Postdoctoral research Fellowship study in August 2024 at the Institute of Malaysian and International Studies (IKMAS), Universiti Kebangsaan Malaysia (UKM) through the founding of the UKM-Kaneka Corporation ASEAN Fellowship 2024.

## MR. HARSHIT KOHLI

**KEYNOTE SPEAKER**

Sr Technical Account Manager
Amazon Web Services

Dynamic Senior Technical Account Manager at Amazon Web Services with 14+ years of experience, adept in IT infrastructure management and solution designing. Proven track record in enhancing healthcare clients' cloud strategies, analytics implementations and Artificial Intelligence workload implementations. Recognized for training and mentoring teams, driving business process improvements, and delivering impactful architecture reviews that elevate client success in a competitive landscape.

## DR. ASLINA BAHARUM

**SESSION SPEAKER**

School of Engineering and Technology
Sunway University, Malaysia



Ts. Dr Aslina Baharum is an Associate Professor and UX Researcher at the School of Engineering and Technology, Sunway University. Previously, she was a Senior Lecturer at Universiti Teknologi MARA (UiTM), and Universiti Malaysia Sabah (UMS). She also has industry experiences where she worked as an IT Officer for the Forest Research Institute of Malaysia (FRIM). She had experienced more than 20 years in the IT field. She received a PhD in Visual Informatics (UKM), a Master Science degree in IT (UiTM) and graduated Bachelor of Science (Hons.) in E-Commerce from UMS. She is a member of the Young Scientists Network - Academy of Science Malaysia, Senior Member IEEE, and certified Professional Technologist from MBOT, and served as MBOT/MQA auditor. She won several medals in research and innovation showcases and was awarded several publication awards, teaching awards, Excellence Service award, and UMS Researchers Awards. She has co- authored and editor books, published several books of chapters (>20), technical papers in conferences and peer-reviewed and indexed journals (>60) papers. She also served as editor for several journals, scholarly contributed as a committee, editorial team and reviewers, and given several invited/ plenary talks at conferences. Her research interests include UX/UI, HCI/Interaction Design, Product & Service Design, Software Engineering & Mobile Development, Information Visualization & Analytics, Multimedia, ICT, IS and Entre/Technopreneurship. Her workshops and talks covered Entrepreneurship, Video/Image Editing, E-Commerce/Digital Marketing, AR/VR/MR/XR in STEM, Design Thinking and etc. She is also a Certified Professional Entrepreneurial Educator, Executive Entrepreneurial Leaders and HRDF Professional Trainer.

## DR. EYMAN F. A. ELSMANY

**SESSION SPEAKER**

Head of Computer Engineering Department
University of Gezira, Malaysia

Dr. Eyman F. A. Elsmany is an expert Computer Science and Engineering, focusing on the convergence of networking, cybersecurity, and systems theory. With over 15 years of academic and research experience, she serves as an Assistant Professor and Head of the Computer Engineering Department at the University of Gezira. Dr. Elsmany's work explores innovative approaches in wireless sensor networks, secure network design, and cyber-physical systems, with a portfolio of impactful publications in top journals. Known for her engaging speaking style, she distills complex cybernetic and security concepts into actionable insights, advancing discussions on the future of autonomous and secure systems in academia and industry.

**DR. SVB SUBRAHMANYESWARA RAO**
**SESSION SPEAKER**
Department of Mathematics, Ramachandra College of Engineering
Vatluru, Eluru, India

Dr SVB Subrahmanyeswara Rao did his Masters and Doctoral degrees in Mathematics from Acharya Nagarjuna University, Guntur. He is a Professor of Mathematics at Ramachandra College of Engineering, Eluru, Andhra Pradesh. He has twenty four years of teaching experience to UG and PG students. He has published many research papers in reputed journals and attended many conferences, workshops and seminars. He authored five text books. He is the reviewer for many International Journals.

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# Abstract's Index

# Sustainable Assessment Tool for Higher Education Institutions (HEIs) in Malaysia: The Inclusion of Education Criteria

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## Abstract

Higher Education Institutions (HEIs) shall play a vital role in advocating sustainability due to their size and population. Given the pressing need for sustainable development and the current shortage of sustainable HEIs in Malaysia, this study aims to incorporate educational criteria into a sustainable assessment tool (SAT) for evaluating sustainable HEIs in Malaysia. This study employs a mixed-methods approach, combining a systematic literature review with the selection of suitable indicators for measuring sustainable HEIs. 30 indicators, focusing on educational criteria, were identified. Subsequently, questionnaires were conducted in ten (10) public HEIs to validate these education indicators. Analysis using SPSS software revealed that all thirty indicators were deemed essential for inclusion in the educational criteria for measuring. The study revealed 30 education indicators from the selected SATs and by employing SPSS software, the top five most significant indicators, were identified as: (1) funding for program development, (2) funding for research and innovation, (3) funding for training, (4) sustainable course and (5) sustainable research. The research mainly contributes to developing a SAT for HEIs in Malaysia which is the main research gap. Initially, it will assist green organisations and the other HEIs in creating an evaluation tool for sustainable HEIs, as the methods already in use are mostly intended for use with residential, commercial, and infrastructure facilities. Second, it will boost the total number of sustainable HEIs. Thirdly, it will allow academics to serve as sustainability assessors.

## Keywords

Higher Education Institutions, Sustainable Higher Education Institutions, Green Campus, Sustainable Assessment Tool, Sustainable Development Education

ISBN: 978-81-976209-6-6

# Generalizing P-Numerical Radius Inequalities for Hilbert Space Operators

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## Abstract

This paper introduces several novel inequalities concerning the p numerical radii of Hilbert space operators. We present new upper and lower bounds for the p numerical radius of products of two operators, three operators, and sums of n operators in Hilbert space. These inequalities are distinguished by their ability to generalize recent results in this field while refining existing inequalities. The research delves into the complex mathematical relationships between operators in Hilbert space, with particular emphasis on the properties of p numerical radius. We provide rigorous mathematical proofs for each proposed inequality, supported by illustrative examples demonstrating the effectiveness and significance of these new results. Our findings represent a valuable contribution to the existing literature on p numerical radii, offering new analytical tools for studying operator behavior in Hilbert spaces. These results open new avenues for research in operator theory and provide a solid foundation for further theoretical developments. The practical significance of these results lies in their potential applications across multiple domains, including control theory, quantum mechanics, and signal analysis. Furthermore, these inequalities contribute to deepening our understanding of operator properties in Hilbert space, leading to more precise analytical tools. The theoretical advancements extend current knowledge of p numerical radii and establish new connections in operator theory, potentially paving the way for future investigations in mathematical analysis.

## Keywords

Inequality, p-Numerical radius, Operator, Norm, Schatten p-norms




ISBN: 978-81-976209-6-6

# Conceptual Framework of Predictive Student Relationship Management (PSRM) Using Business Intelligence for Undergraduate Student Retention

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**Pallop Piriyasurawong**
Division of Information and Communication Technology for Education, Faculty of Technical Education, King Mongkut's University of Technology North Bangkok, Bangkok, Thailand

## Abstract

This research proposes a conceptual framework of Predictive Student Relationship Management (PSRM) Using Business Intelligence (BI) to improve undergraduate student retention. A qualitative approach, including document analysis and thematic synthesis, identified SRM processes aligned with BI strategies. The SRM framework follows the student journey across three phases: 1) Pre-enrollment, focusing on attracting prospective students and sharing institutional information; 2) Enrollment, the critical phase, involving four processes: student lifecycle management, personalized counseling, academic support, and managing expectations; and 3) Post-graduation, emphasizing alumni networks and career development. The enrollment phase is pivotal, leveraging BI foundational components, including predictive analytics, to enhance the framework's capacity to analyze historical and real-time data. Techniques such as data preparation, feature engineering, model development, and validation provide actionable insights for identifying at-risk students. Predictive models based on performance and engagement metrics enable institutions to implement timely interventions, such as academic support and counseling, improving student retention and fostering academic success. This research offers a structured approach for institutions to proactively address student needs, enhance retention, and ensure academic success through predictive modeling.

## Keywords

Predictive Student Relationship Management, Business Intelligence, Student Retention

# A Conceptual Framework for Integrating Design Thinking with Engineering Learning in Cloud Ecosystems

**Pattra Suansokchuak**
Division of Information and Communication Technology for Education, Faculty of Technical Education, King Mongkut's University of Technology North Bangkok, Bangkok, Thailand

**Pallop Piriyasurawong**
Division of Information and Communication Technology for Education, Faculty of Technical Education, King Mongkut's University of Technology North Bangkok, Bangkok, Thailand

## Abstract

This study introduces a conceptual framework for integrates Design thinking with engineering learning supported by the cloud ecosystem to enhance modern education. The proposed framework utilizes cloud-based platforms to facilitate personalized, collaborative, and adaptive learning environments. To bridge theoretical and practical knowledge, the framework integrates accepted learning theories such as constructivism, problem-based, cooperative, and experiential learning. This integration promotes critical skills such as creativity, artificial intelligence, and innovation, enabling learners to tackle complex real-world challenges. Furthermore, cloud technologies allow data to access, analysis, and collaboration, making education more dynamic and resourceful. Despite its potential, challenges such as data privacy and equitable access still need to be addressed for effective implementation.

## Keywords

Design Thinking, Engineering Learning, Cloud Ecosystem, Collaborative Learning, Adaptive Learning




ISBN: 978-81-976209-6-6

# A Study of Strategies for Utilizing Production Waste from Processing Olah Plastic in Bandung City

**Nora Hafildah***
Telkom University, Indonesia

**Runik Machfiroh Nora Hafildah**
Telkom University, Indonesia

**Marissa Cory Agustina Siagian**
Telkom University, Indonesia

**Andreas Rio Andriyanto**
Telkom University, Indonesia

## Abstract

Indonesia faces a critical challenge in managing its waste, particularly plastic waste, which continues to rise annually due to human activities. Plastic waste poses significant environmental problems as it takes hundreds of years to decompose, contributing to soil fertility degradation and ecosystem damage. According to the Ministry of Environment and Forestry (2023), Indonesia generates 38.34 million tons of waste annually, with 38.37% remaining unprocessed. Bandung City contributes 503,627.36 tons annually, highlighting the need for effective waste management solutions. This study focuses on Olah Plastic, a small-medium enterprise (SME) in Bandung that recycles LDPE, PP, and HDPE plastic waste into lifestyle products and furniture. Established in 2020, Olah Plastic adopts a sustainability-focused business model aligned with the Sustainable Development Goals (SDGs). Despite its innovative recycling efforts, the company faces challenges in managing production residuals, which remain unprocessed and accumulate over time. Using a qualitative method with a case study approach, this research aims to explore strategies to minimize residual waste and achieve zero waste in Olah Plastic's operations. By integrating the principles of Reduce, Reuse, and Recycle (3R), this study seeks to develop solutions that enhance the company's recycling processes, improve environmental sustainability, and support waste management innovation.

## Keywords

Plastic Waste 1, Waste Management 2, Sustainability 3, Recycling 4, Zero Waste 5

# Exploring the Potential of Textile Waste as Sustainable Material through Upcycling Approaches

**Muhammad Ridwan Aliah**
Telkom University, Indonesia

**Fajar Ciptandi**
Telkom University, Indonesia

## Abstract

The textile industry, a pivotal sector in Indonesia, produces substantial amounts of waste annually due to increasing production demands. This waste, predominantly derived from post-consumer and pre-consumer sources, is often inadequately managed, resulting in severe environmental repercussions. This study explores the feasibility of repurposing textile waste into sustainable materials through an innovative upcycling approach. Utilizing the gathering and combining method, the research integrates textile remnants with various adhesive agents, including PVAc glue, Fox Green glue, and homemade adhesives, to create novel composite materials. The experimental process involved comprehensive analysis of the composites' physical, mechanical, and aesthetic properties. The results demonstrate the transformative potential of textile waste into value-added materials suitable for diverse applications within the creative industries, such as furniture design, fashion accessories, and architectural components. This study underscores the dual benefits of economic and environmental sustainability by implementing circular economy principles within the textile sector. Moreover, it addresses critical challenges, including technological limitations and societal adoption, offering actionable insights for sustainable waste management practices. By advancing innovative methodologies and material solutions, this research is expected to contribute to the broader discourse on sustainable development and resource efficiency, providing valuable guidance for policymakers, industry practitioners, and academia in fostering an environmentally responsible textile ecosystem.

## Keywords

Textile Waste, Upcycling, Sustainable Materials, Circular Economy, Creative Industries, Waste Management




ISBN: 978-81-976209-6-6

# Causal and Consequential Factors Associated with Academic Success of Undergraduate Students

**Naksit Sakdapat**
Assistant Professor, Faculty of Humanities, University of the Thai Chamber of Commerce, Thailand

## Abstract

The objectives of this research were twofold: 1) to seek causal and causal factors of mental traits and circumstances related to the academic achievement of undergraduate students, and 2) to develop and investigate the consistency of the causal factor model that affects the academic achievement of undergraduate students. The tool used in this research was a questionnaire. Data analysis uses basic statistical analysis such as percentage, mean, and standard deviation. Skewness, prominence. The results showed that the model could predict 47.20% of academic achievement and 51.20% of academic achievement. In this research, the researcher has applied the research results and policy suggestions to a wide range of relevant policy departments such as the Ministry of Higher Education, Science, Research and Innovation so that the Ministry can apply them in practice and disseminate them in line with the Ministry's mission.

## Keywords

Academic Success, Undergraduate Students, Thailand

# The Role of Virtual Reality Technologies in the Experiences of Museum Professionals

**Mutlu Erbay**
Boğaziçi University, Istanbul, Türkiye

**Fethiye Erbay**
Istanbul University, Istanbul, Türkiye

## Abstract

The advancements in technology today have revolutionized presentation techniques in next-generation museum practices, making them more experience-oriented. Experiences are discussed as extraordinary events that are long-remembered and shared with others. Pine and Gilmore (1998) classified experiences under four dimensions: education, entertainment, escapism, and aesthetics. Virtual reality (VR) applications have become increasingly prevalent in museums, including those in Türkiye.

This study aims to examine the role of virtual reality technologies in the experiences of museum professionals. To achieve this, the "Journey into Osman Hamdi Bey's World" virtual reality application was analyzed using a sample consisting of museum managers, staff, academics, and students. Unlike previous studies focusing on museum visitors, this research targets museum professionals and was conducted in an educational setting outside the museum environment.

The research was carried out at a university with 30 museum professionals. Participants were asked five questions and engaged in semi-structured interviews following their VR experiences using headsets. The analysis measured the overall impact of VR on education, entertainment, escapism, and aesthetic dimensions. Participants emphasized the role of VR in enhancing educational and experiential aspects. They also highlighted the potential of virtual reality technologies in transforming museums into experience-driven workshops of the future.

Considering these findings, the study suggests that evolving technologies will significantly influence the experiential and interactive future of museums.

## Keywords

Virtual Reality, VR Experience, Museum Professionals, Osman Hamdi Bey, Role of Experience




ISBN: 978-81-976209-6-6

# Scholarly Trends and Emerging Themes in Online Dispute Resolution: A Bibliometric Analysis

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## Abstract

This study conducts a bibliometric analysis to explore the academic landscape of Online Dispute Resolution (ODR), focusing on research trends, influential contributions and emerging themes from 2020 to 2025. Using the Scopus database, 103 journal articles published in English across subject areas such as sociology, business, economics and psychology were analysed. The results reveal a steady growth in research output, highlighting increasing global interest in ODR technologies and practices. Key research areas include technology integration in dispute resolution, cross-border mediation and the role of artificial intelligence in enhancing procedural efficiency. Citation analysis identified seminal works on AI-powered ODR platforms and legal frameworks for cross-jurisdictional disputes as highly influential. Keyword co-occurrence analysis highlighted themes such as 'digital mediation', 'access to justice', and 'cybersecurity'. The findings also point to a rising emphasis on integrating advanced technologies into ODR systems, reflecting the field's dynamic evolution. However, limitations of this study include reliance on a single database and exclusion of non-English literature, potentially limiting the scope of the findings. Future research should explore underrepresented themes such as cultural sensitivity in ODR, its application in emerging economies, and the ethical implications of AI-driven dispute resolution. These areas offer valuable opportunities to enhance both the theoretical understanding and practical applications of ODR in the modern digital era.

## Keywords

Bibliometric Analysis, Digital, Dispute, Legal Frameworks, ODR

# Improvised Fuzzy Logic Controller using Feedforward, Feedback Offset, and Proportional Integral for Nonlinear Knee Extension Model

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**Abstract**

Rehabilitation through exercise using functional electrical stimulators (FES) is an effective approach to aiding recovery for individuals with spinal cord injuries (SCI). FES devices induce muscle contractions via electrode pads, generating force and torque. Precise control is essential to prevent overstimulation, which could lead to fatigue, pain, or injury. However, nonlinear effects such as fatigue, spasticity, and time delays pose challenges to feedback control systems, often resulting in performance degradation. Fuzzy logic controllers (FLCs) are known for their robustness in addressing these issues but face constraints in control bandwidth and time delay management, which can lead to oscillations. This study proposes an enhanced FLC by designing fuzzy input membership functions, rules, and outputs and incorporating tuning strategies to address these limitations. Additionally, the integration of feedforward, feedback offset, and proportional-integral strategies is emphasized to improve control bandwidth and mitigate the effects of time delays. The proposed control algorithm is simulated and evaluated using MATLAB/Simulink in the context of knee extension model, which is characterized by nonlinearities. The results demonstrated that the newly enhanced FLC architecture could effectively overcome bandwidth and time delay challenges, validating its suitability for knee extension rehabilitation in SCI patients.


ISBN: 978-81-976209-6-6

# Programmable and Flexible Stimulator for Neuromuscular FES

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**Abstract**

This paper presents the design of a programmable and flexible stimulator that generates biphasic stimulation waveforms for neuromuscular functional electrical stimulation (FES). The FES device facilitates muscle contraction in the paralyzed limbs of spinal cord injury (SCI) patients by delivering low electrical pulses to muscles through electrode pads. A major challenge in FES-induced muscle contraction is early muscle fatigue, which significantly limits activities such as FES-assisted standing and walking. The fixed rectangular stimulation pattern commonly applied to the same motor unit causes overwork and early muscle fatigue. This work proposes a programmable and flexible stimulator using an Arduino Mega 2560 and biphasic output current source circuits. The stimulus parameters are designed to provide programmable biphasic output current (0–100 mA), pulse width (50 µs–20 ms), and frequency (20–2 kHz). Additionally, flexible waveform shapes, including rectangular, ramp-up/down, triangular, trapezoidal, exponential up/down, and burst pulses, are incorporated. The biphasic output current circuit ensures safety by preventing residual charge accumulation on electrodes, reducing the risk of skin burns. The design was first simulated in Proteus 8 software and later implemented and tested on hardware circuits. A simplified graphical user interface (GUI) was developed to support real-time parameter configuration. Simulation and hardware measurements validated the proposed design's functionality according to specifications.

ISBN: 978-81-976209-6-6

# Mongolian Language as a Second Language in an Online Classroom

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## Abstract

Concerning the Mongolian language teaching methodology for international students, our country's education sector has not had enough practice and experience. Hence, we need not only specialized techniques, approaches to effectively support language learners, but also utilizing a variety of teaching methods and supporting research-based instructional strategies.

Accordingly, the flipped classroom method was used to improve the Mongolian reading skills of international students.

Based on single factor ANOVA, reading skill (⍰=0,02) were significantly improved. The Tukey-kramer testing system is being used for a critical range reading ability (5,4) leading to 7,11% of improvements to occur between beginning, middle and after the classes. Even though reading section has had downfall during class, last estimation showed 9.12% achievements meaning significant statistical difference. Extensive reading training for developing reading competency was assessed at level 1-2 questions 18% (n=4), level 3-4 50% (n=11) and level 5 or academic level 31.8% (n=7) were able to answer, leading to students being at intermediate level of Mongolian language.

## Keywords

Mongolian Language, Teaching Methodology, Reading Skill of Foreign Students




ISBN: 978-81-976209-6-6

# The Impact of Language Proficiency and Other Factors on Students' Academic Performance: (In Case of the Accounting Study of Num)

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## Abstract

Students' academic performance is one of the key indicator in educational institution. Researchers noted that the many factors are influence students' academic performance. For example, student goals, teacher skills, school management, student's attitude and curriculum etc. In this study, we considered the impact of language proficiency and other factors on students' academic performance and their influences. The main data of study was collected by students of the Accounting Department of the National University of Mongolia and were processed by the researchers. For data collection, we used descriptive and inferential statistics. The contribution of this study is to explore the several key factors that affect student's academic performance. These factors are english language proficiency, family support, profession/career choice, institutional environment (materiality and teachers), friends, students' attitudes. The mean age of students/respondents was 20.5 years. About 80% of the respondents were between 18-21 years of age, 19% were 22-25 years and others were 26 and above. And 75% of the students were male, and 25% were female. About 70% of the respondents' parents' income were up to 3 million tugrugs. 55.6% of the respondents' families have 3-5 children and 30.6% have more than 6 children. 88.5% of the students are average and good performance in the course of study, 8.6% had a high performance, and 2.9% performed poorly. The effect of factors on students' academic success was determined by regression analysis. According to the results of the regression analysis, the value of R Square .199 shows that about 20% variation in student performance was due to the independent variables of english language proficiency, students' attitude, family support, institutional environment, career choice, and friends. The results of the study showed that the english language proficiency causes 45.6%, students' attitude 5.1% positive variations in student performance, profession/career choice causes 5.8%, institutional environment (materiality and teachers) making 1.7% variations positive, and family support causes 8.3% negative variation (but the significant level is low), and friend's characteristics is causes 5.7% positive variations in students performance. The results of the study showed that the english language proficiency for 45.6% positive variations in students' performance of accounting study of Namional University of Mongolia.

## Keywords

English Language Proficiency, Grade Point Avergage, Regression Analysis

# The Features of Poetry Genealogy of People's Writer B. Lkhagvasuren (On the Example of Ecocriticism)

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## Abstract

Ecocriticism, or the theory of ecoliterature, which is widespread in western countries in modern times, helps to study the relationship of man and nature, that is, the relationship between man and nature, and how it reflects the idea of protecting the environment and preventing environmental destruction.

The ethical issues of nature conservation occupy an important place in the traditional thinking of Mongolians because they have been engaged in nomadic animal husbandry and living in close connection with nature.

Today, when the world is united in the concept of "Sustainable Development" and one of its three cornerstones is the environment, it is possible to cultivate the ethics of nature conservation through literature, especially poetry.

In this article, we will briefly describe the idea of protecting the environment in some of the works of B.Lkhagvasuren, a well-known representative of modern Mongolian literature, "People's Writer".

## Keywords

Contemporary Poetry, Ethics, Conservation




ISBN: 978-81-976209-6-6

# Research on the Factors Affecting the Teaching Profession as a Career Choice

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## Abstract

This study investigated the factors influencing the career choices of high school students in Mongolia, focusing on the teaching profession. The factors were classified into intrinsic, extrinsic, and influence of others on the decision to pursue a teaching career. The study was conducted using a questionnaire. The findings indicated that students are deterred from pursuing a teaching career due to heavy workloads, inadequate pay, limited opportunities for career advancement, and unfavorable working conditions.

## Keywords

Teacher, Teaching Profession, Factors Affecting the Teaching Career

# Assessing Learning Outcomes of English for Specific Purposes at the Mongolian University of Science and Technology

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## Abstract

Quality assurance has been a priority in higher education universities in Mongolia for over two decades. Since 2016, the Mongolian University of Science and Technology (MUST) has implemented the international quality management system ISO 9001:2015. The management systems for educational organizations ISO 21001:2018 have been in operation to meet the criteria for standards for six years. In connection with the implementation of international quality assurance, there was a need to assess the learning outcomes of English for Specific Purposes at MUST by standards. This paper aims to present the results of course learning outcomes assessment of the English for Specific Purposes included in the bachelor's degree programs for engineering students offered by the School of Foreign Languages. The authors have applied an assessment sample developed by the Department of Academic Affairs and Digital Transformation, MUST in their study. The paper describes an overview of the assessment process implemented from the 2023-2024 academic year. Quantitative and qualitative methods were applied in this study. The satisfaction survey on the course was conducted using Google Forms. The SPSS program was a systematic method for measuring CLO results. As for ESP, five learning outcomes were developed and evaluated using the same criteria. The study revealed that 63.41% of the participants met the CLO requirements and 36.59% failed. The practicality of this article is to get some insight into how to improve course learning outcomes of the ESP based on this assessment. Finally, the study attracts university colleagues striving to evaluate learning outcomes and whose professions will be accredited by domestic or overseas accreditation councils.

## Keywords

Quality Management, Higher Education, English Course, Evaluation, Outcomes




ISBN: 978-81-976209-6-6

# China's Soft Power Perception of Mongolian High School Students with Chinese Language Curriculum

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## Abstract

This research examines Mongolian high school students' views on soft power, specifically the influence of a Chinese language curriculum in promoting Chinese culture. A sample of 235 students from Ulaanbaatar high schools was analyzed using six factors and 30 questions on language and cultural concepts. The Chinese Dream, introduced by President Xi Jinping in late 2012, represents a vision for China's future, encompassing both personal and national ideals. Aligned with China's "Dream" initiative, foreign policy and the Chinese Embassy enhance China's image by fostering educational opportunities for Mongolian youth, positioning education as a key soft power tool. Findings from hypothesis testing, cross-tabulation, and correlation analysis reveal that China's image influences students' educational aspirations, linked to soft power dimensions like culture, digital strategies, engagement, education, entrepreneurship, and governance. The analysis reveals that China's soft power, including digital platforms, education, engagement, and culture, shows strong positive correlations ($r = 0.3–0.5$). Conversely, soft power linked to government, enterprise, and engagement has weaker correlations with Culture ($r = 0.275–0.337$). Notably, digital initiatives, culture, and education exhibit strong positive correlations.

## Keywords

The Prospect of Education, Linguistic and Cultural Dimensions, Cultural Exchange and Impact, Inspiration and Motivation, Education as a Tool of Soft Power

# Some Issues of Mongolian and Japanese Higher Education

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## Abstract

Since the 1990s, weak government has led to increased private sector activity. Many private universities have been established and the number of students has increased by 7-10. Due to the lack of quality assurance in education, a new higher education law was enacted in 1995, which provided for quality. Accreditation and credit hours were established to improve quality. In Japan, gender differences are still observed in most areas of education and in the labor market. In particular, the proportion of women in first-time tertiary education (university graduates) is low. Three out of four young people in Japan have a tertiary education (usually a short-term or bachelor's degree). Japanese university students have to pay high tuition fees, and few students receive formal assistance. Japan has one of the highest rates of higher education in the world.

In the pre-economic boom, Japanese higher education was focused on government-led men to accelerate reform. Japan's economic growth has increased the demand for education for ordinary people and led to an increase in the number of private higher education institutions. But, the main reason for the development of higher education in Japan was the sincere desire of ordinary people to pursue higher education

## Keywords

Accreditation, Credit System, Japanese Government Policy, Economic Growth, People's Requests




ISBN: 978-81-976209-6-6

# Real-Time Active Subdomain Takeover Detection for Cloud-Native Gaming Platforms

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**Abstract**

As gaming platforms increasingly adopt cloud-native architectures, the security risks associated with subdomain takeovers have intensified significantly. Subdomain takeovers occur when an attacker capitalizes on misconfigured or abandoned DNS records, thereby gaining control over an inactive subdomain of a legitimate gaming platform. This vulnerability exposes players and gaming companies to phishing attacks, malware distribution, unauthorized API access, and potential manipulation of in-game economies, resulting in data breaches, reputational harm, and service disruptions.

Cloud-native gaming platforms typically leverage dynamic infrastructure scaling, third-party services, and content delivery networks (CDNs), which often generate temporary or residual DNS records. When these records remain unclaimed or improperly configured, they create vulnerabilities for attackers to seize legitimate subdomains, impersonate official gaming services, and compromise sensitive data. The transient nature of cloud services renders traditional periodic security audits inadequate, thereby necessitating a real-time detection and mitigation strategy.

This paper introduces a real-time active detection framework aimed at identifying and mitigating subdomain takeover risks within cloud-native gaming environments. Our methodology combines automated DNS reconnaissance, certificate transparency log analysis, and active HTTP fingerprinting to identify vulnerable subdomains prior to potential exploitation by adversaries. We utilize machine learning models trained on DNS misconfiguration patterns to forecast takeover risks and implement continuous monitoring pipelines to oversee newly registered subdomains, expiring cloud services, and decommissioned infrastructure.

Through comprehensive experimental analysis of leading gaming platforms, our system demonstrates high precision in real-time subdomain takeover detection, with minimal false positive rates. The framework effectively identifies vulnerable orphaned CNAME records, abandoned cloud assets, and expired hosting environments, facilitating proactive risk management. Furthermore, we outline best practices for mitigation strategies, including automated DNS record maintenance, domain ownership verification, and proactive infrastructure vigilance.

The research further examines the implications of subdomain takeovers on the gaming ecosystem, including their contribution to cheating, fraud, and distributed denial-of-service (DDoS) attacks directed at game servers. By implementing an automated security response system, our solution minimizes the attack surface and fortifies platform resilience against emerging threats.

This study emphasizes the necessity of real-time security automation in protecting cloud-native gaming platforms from evolving threats, providing a practical, scalable solution that gaming companies can seamlessly integrate into their existing cybersecurity frameworks.



ISBN: 978-81-976209-6-6

# Dynamic Subdomain Risk Scoring and Mitigation Framework for Supply Chain Organizations

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**Abstract**

In the contemporary landscape of interconnected supply chains, organizations extensively depend on sophisticated digital infrastructures, where DNS subdomains play a pivotal role in facilitating operations, logistics, and data exchange. However, these subdomains frequently go unmonitored, rendering them attractive targets for cyber threats. This paper presents a proactive and automated method for subdomain security, utilizing the Scoring Framework for Subdomain Security (SCSS) while enhancing the Automated Subdomain Risk Scoring Framework to address vulnerabilities specific to supply chain environments. By incorporating real-time scanning, automation pipelines, and Governance, Risk, and Compliance (GRC) modules, this framework not only identifies risks but also optimizes mitigation processes, minimizing disruptions and fortifying security measures. Experimental results underscore the framework's efficacy in prioritizing vulnerabilities, optimizing resource deployment, and ensuring alignment with regulatory standards. This research offers a structured yet flexible solution to protect supply chain organizations from emerging DNS-based threats.




ISBN: 978-81-976209-6-6