ICSIFT

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"Pioneering Innovation, Shaping the Future"

Proceedings of the

2nd International Conference on **Sustainability, Innovation and Future Technologies**

"Sustainable Innovation: Bridging Technology and Environmental Stewardship"

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Acknowledgement

ZEP Research is hosting the 2nd International Conference on Sustainability, Innovation and Future Technologies at Bangkok, Thailand on December 27th - 28th , 2025. The main objective is to grant the amazing opportunity to learn about groundbreaking developments of this era, 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 scope 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 painstaking effort to travel such a long distance to attain this conference.

Priyanka Sahu

Mrs. Priyanka Sahu
Founder
ZEP Research

Editorial

Dear Readers,

In an era defined by rapid technological advancements and pressing sustainability challenges, the **2nd International Conference on Sustainability, Innovation, and Future Technologies (2nd ICSIFT): Shaping a Sustainable Future Through Innovation and Emerging Technologies** serves as a vital platform for intellectual exchange and collaborative discourse. This gathering of esteemed scholars, researchers, industry leaders, and policymakers underscores the collective commitment to fostering sustainable solutions through innovation and forward-thinking strategies.

As the world grapples with environmental degradation, resource scarcity, and the complexities of digital transformation, this conference aims to explore cutting-edge research, emerging technologies, and sustainable practices that can drive positive change. It provides an opportunity to discuss actionable strategies that balance economic growth with environmental stewardship, ensuring a future that is both technologically advanced and ecologically responsible.

Through insightful keynote addresses, rigorous academic presentations, and dynamic panel discussions, this event aspires to generate meaningful conversations that bridge disciplines and sectors. The knowledge and innovations shared here will undoubtedly contribute to shaping policies, guiding industries, and inspiring communities toward a more sustainable and resilient future.

We welcome all participants to engage in this vital dialogue, collaborate on transformative ideas, and take an active role in shaping the future of sustainability and technology. Let us work together to build a world where innovation not only drives progress but also safeguards the well-being of future generations.

Warm Regards,

Dr. Sipnarong Kanchanawongpaisan
Keynote Speaker, ICSIFT, 2025

Preface

ZEP Research is hosting the 2nd ICSIFT Conference at Bangkok, Thailand on 27th- 28th, December, 2025. This edition of conference is called in Bangkok, Thailand. Hosted onsite and online mode for the convenience of our attendees.

It is our great pleasure to have Dr. Yannakorn Toprayoon and Dr. Satyajit Pattnaik serving as Session Chairs, along with the following distinguished Keynote Speakers: Desiderio R. Apag III, Dr. Chai Ching Tan, Dr. Sipnarong Kanchanawongpaisan, Dr. Nishit Aman, and Dr. Chanyanan Somthawinpongsai. The Conference Chair is Randy Joy Magno Ventayen, the Conference Co-Chair is Dr. Dowroong Watcharinrat, and the Organizing Secretary is Dr. Renato E. Salcedo. The ICSIFT Conferences aim to promote interdisciplinary collaboration and the advancement of sustainability and innovation across various fields. The conference serves as a platform for discussing the challenges and solutions related to the practical implementation of cutting-edge research in Sustainability, Environmental Science, Renewable Energy, Innovation, and Technology. Bringing together experts from diverse sectors, ICSIFT seeks to address global challenges through innovative solutions and the sharing of knowledge that can shape a sustainable future.This conference serves as a crucial platform for researchers, practitioners, and industry leaders to exchange ideas, share insights, and forge collaborations. Through keynote presentations, technical sessions, and interactive workshops, we aim to explore the latest developments, thoughts, and ethical considerations in this rapidly evolving field.

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

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

Welcome to the International Conference on Sustainability, Innovation and Future Technologies

2nd International Conference on Sustainability, Innovation and Future Technologies

Bangkok, Thailand

27th - 28th, December, 2025

Organizer's Message



Mrs. Priyanka Sahu
Founder
ZEP Research, India

Dear All,

It is with great pleasure that we present the proceedings of the International Conference on Sustainability, Innovation and Future Technologies (ICSIFT-2025). This compilation of scholarly contributions represents the collective efforts of researchers, academicians, industry experts, and practitioners who are dedicated to advancing knowledge and fostering innovation in their respective fields.

The 2nd ICSIFT-2025 serves as a platform for intellectual exchange, interdisciplinary discussions, and the dissemination of pioneering research that bridges the domains of Sustainability, Innovation and Technologies. The papers included in this volume reflect a broad spectrum of cutting-edge studies, innovative methodologies, and practical applications aimed at addressing contemporary global challenges.

We extend our sincere gratitude to all the authors, reviewers, keynote speakers, and participants for their invaluable contributions. Special appreciation is due to Philippine Christian University, Philippines and the organizing committee, technical team, and advisory board for their unwavering dedication in making this conference a success. As we move forward, we hope that the insights and discoveries shared in this proceedings book will inspire further research, collaborations, and meaningful advancements across disciplines. We look forward to continuing this journey of academic excellence and innovation in future editions of 2nd ICSIFT-2025.

Priyanka Sahu

Mrs. Priyanka Sahu
Founder,
ZEP Research, India

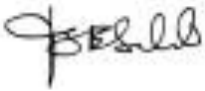
Organizing Secretary



Dr. Renato E. Salcedo, CESE
Campus Executive Director/Associate Professor V
Pangasinan State University
Philippines

On behalf of the Organizing Committee, I warmly welcome all researchers, practitioners, and participants to the 2nd *International Conference on Sustainability, Innovations, and Future Technologies*. This gathering serves as a dynamic platform to exchange insights, present groundbreaking research, and foster collaborations that will shape a more sustainable and innovative future.

Your active participation is vital in enriching the dialogue and inspiring solutions that address today's pressing challenges while envisioning the possibilities of tomorrow. Together, let us transform ideas into impactful actions for a better world.



Dr. Renato E. Salcedo, CESE
Organizing Secretary
2nd ICSIFT 2025

Keynote Speakers



Dr. Chai Ching Tan
Professor
National Institute of Development and Administration
Thailand

Dear All,

I would like to extend my warmest congratulations to the Organizing Committee for the successful convening of the 2nd International Conference on Sustainability, Innovation, and Future Technologies (ICSIFT 2025), held in Bangkok, Thailand.

This conference represents a timely and meaningful academic platform that brings together scholars, researchers, and practitioners to engage in critical dialogue on sustainability, innovation, and future-oriented technologies—domains that are increasingly central to global development agendas. The breadth of topics covered and the interdisciplinary nature of the discussions reflect both intellectual rigor and practical relevance, contributing significantly to the advancement of knowledge and policy-oriented insights.

I commend the organizers for their dedication, professionalism, and vision in creating an inclusive and high-quality international forum that fosters collaboration across countries and disciplines. The efforts invested in planning and execution are clearly reflected in the quality of the conference program and the scholarly contributions compiled in these proceedings.

It is my sincere hope that the outcomes of ICSIFT 2025 will inspire further research collaborations, innovative solutions, and sustained academic exchange in the years to come. I wish the conference continued success and look forward to witnessing its growing impact in future editions.

With best regards and congratulations, Best Wishes,

Dr. Chai Ching Tan
Keynote Speaker,
2nd ICSIFT-2025



Dr. Nikola Naumov
Senior Academic &amp, Researcher,
University of Northampton, UK

It is an honor to contribute to **"2nd International Conference on Sustainability, Innovation and Future Technologies (2nd ICSIFT-25)"**and to engage with colleagues who are passionate about shaping the future of hospitality and tourism.

In my keynote, *Hospitality 2050: How Innovation and Sustainability are Redefining the Guest Experience*, I explore how technological transformation and sustainability imperatives are converging to reshape our industry. From artificial intelligence and robotics to immersive environments and digital twins, innovation is revolutionizing service delivery. At the same time, sustainability is emerging as the defining competitive advantage, requiring operations that are not only net-zero but also regenerative and socially responsible. Yet, the essence of hospitality remains rooted in human warmth, empathy, and cultural authenticity. Looking toward 2050, the greatest challenge — and opportunity — lies in balancing automation with the human touch, ensuring inclusivity, ethics, and trust. The hospitality of the future must be sustainable, human-centered, and transformative, delivering value not only to guests but also to host communities.

Thank you, and I hope you will enjoy the Conference!

Warm Regards,

Dr. Nikola Naumov
Keynote Speaker,
ICSIFT-2025

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Index

Sl No	Title	Author Name	Page
1.	Applying Prescriptive Analysis on Enhancing Philippine E-Government Websites' Performance and Accessibility	• Kristen Bhing V. Salvio	1
2.	Policy Model for Barangay Tinago Public Governance on Waste Management Sustainability Using Regression Analysis	• Leodivino A. Lawas • Leovigilda L. Bithay	2
3.	TikTok Tourist Vlogs: Their Impact on Travel Decisions in Manila	• Apolinar P. Datu • Erwin Joel B. Layug • Louisse Alfonso Ramirez • Chona S. Lajom • Errol R. Martin • Aldrich Oliver P. Sytingco • Caress Marie L. Simuangco • Mary Jane A. Cortes • Ma. Carla Patricia M. Gonzales • Roberto N. Banton Jr. • May Ann G. Nollora • Hazel Joy C. Cayabyab • Kenneth Bryan M. Aliser • Renielle Cielo S. Pealane • Rosell P. Cultivo • John Diaz Lusuegro • Charissa Joana G. Francisco • Richard Kenneth M. Valeza • Jeannely C. Lacanilao • Dr. Victoriana A. Piliin • Mary Rose Anson P. Ignacio, MBA	3
4.	TikTok as a Powerful Tool for Showcasing Philippine Destinations: Its Influence on Tourism and Digital Marketing	• Apolinar P. Datu • Dawn Nari S. Condez • Robbie Jan Vincent T. Buelo • Cindy I. Sabado	4

		• Catherine B. Soriano • Jeanette P. Datu • Jidnaida S. Minay • Erica V. Bingayen	
5.	Students' Perceptions regarding Food Preparation Practices in a Private School in Manila Concessions: Addressing Challenges and Opportunities for Improvement	• Apolinar P. Datu • Gary G. Garcia • Jeferson C. Mojica • Julian Charles Lopena • Jonas A. Jaro • Lyzza D. Bartican • Aljen B. Cabrera • Chona S. Lajom • Olivia L. Yosa • Rommel H. Orquiza • Jovan L. Yosa • Cristopher T. Takano	5
6.	Evaluating Grab's Role in Enhancing Commuter Experience as a Digital Transport Assistant in Metro Manila	• Apolinar P. Datu • Ana Celine G. Esquierdo • Chona S. Lajom • Louisse Alfonso Ramirez • Lynnebeth E. Jakosalem • Renielle Cielo S. Pealane • Errol R. Martin • Aldrich Oliver P. Sytingco • Caress Marie L. Simuangco • Ma. Carla Patricia M. Gonzales • Mary Jane A. Cortes • Roberto Jr. N. Banton • Kenneth Bryan M. Aliser • Hazel Joy C. Cayabyab • Jeannely C. Lacanilao • Dr. Victoriana A. Piliin • Mary Rose Anson P. Ignacio, MBA	6
7.	Advancing Quality Education in Architecture: A Comparative Study of Traditional and Digital Learning Approaches	• Antoniette Almaden • Cheradee Ann Cabanlit • Evangeline Evangelista • Nicole Grace Ceniza • Carla Nicole Francisco	7

		• Jezrael Philip Fuentes • Jeliane Marie Santillan • Trexie Margarette Tagbar	
8.	Renewable Energy Technologies towards Sustainability	• Dr. Donnalyn C. Cabaces	8
9.	Smart and Equitable Library Access: A Human-Centered Time-Tracking Policy for Congestion Management in a Cebu-Based Higher Education Institution	• Antoniette Almaden • Ella Marie Barrioquinto • Evangeline Evangelista • Christopher John Rubio • Axziel Jay Bartolabac • Clyde Justine Rosal • Benideck Longakit • Glenford Estimada	9
10.	Thematic Mapping of Landslide Susceptibility in Nueva Vizcaya: Enhancing Disaster Resilience and Management Strategies	• Sarilyn B. Raspado • Abigail P. Cid-Andres	10
11.	Comparison of Direct Cost and Turnaround Time (TAT) of Testing Heavy Metals in Water and Wastewater Using Flame AAS and ICP-OES Methods	• Kevin Bernard O. Domingo • Ricardo P. Rabang • Venusmar C. Quevedo	11
12.	Term Onset Vs. Term Completion: A Comparative Analysis On First Year Students' Psychological Well-Being	• Shedy Dee M. Lugtu • Raven Joy P. Pangilinan • Mary April P. Purisima	12
13.	The Relationship Between Socioeconomic Status and Cybersecurity Threat Exposure of College Students of a Private Higher Education Institution in Cebu City	• Stephanie Grace Cortes1, Antoniette Almaden2	13
14.	Passive Cooling Strategies in Tropical Climates: Mechanical Ventilation and Building Envelope Optimization for Energy-Efficient Structures	• Engr. Allan B. De Villa	14
15.	Optimizing HVAC Systems through Advanced Mechanical Design and AI Integration for Sustainable Smart Buildings	• Engr. Allan B. De Villa	15
16.	Evaluation of the Effectiveness of Rice Hull Biochar Mixed with Soils from Mining Areas in Plant Growth	• Arden Peejay L. Ezaki, Alma L. Merano, Sherwin R. Reyes	17
17.	Investigating Factors Affect Indigenous Knowledge Based Names and Naming Practice in Maale Society in South Omo Zone, Ethiopia.	• Abriham Yehannes • Ayano Gudano • Wendimagegn Negash	18
18.	Data-Driven Prediction to Cropping Intensity in Chittagong Using Machine Learning on	• Nusrat Kamal • Eazdan Mostafa Rafin	19

	Precipitation Impact		
19.	Gap Analysis of Higher Education Service Quality: A Case Study of A Private Institution in the Philippines	• Janice M. Francisco • MBM Aurelia Del Rosario • MBA Daisie Pinzon • MIT John Pascual Magnawa Kim Menil Orias	20
20.	Exploring the Relationship Between Service Gaps, Student Satisfaction, and Institutional Commitment: A Case Study of an Educational Institution in the Philippines	• Janice M. Francisco • Aurelia E. Del Rosario	21
21.	A Critical Evaluation of Working Capital Management Strategies and Profitability	• Itthirit Wongchai • Wittawat Kadthan • Pamonratt Pholtha • Panadda Chanthakol	22
22.	Development of an Online Job Application System with Decision Support for Public Employment Service Office	• Rhoel Sarino	23
23.	Mobile Application for Disease Classification of Coffee Plant Leaf Using Yolov10 Deep Learning Technique	• Rosalina D. Lacuesta • John Lloyd P. Centeno • John B. Razonado • Alhajzem A. Tua • Grace S. Ibañez	24
24.	AI-Powered Marketing: Consumer Perspective on AI-Assisted Digital Marketing Tools Effectiveness in E-Business Platforms	• Liane Vina G. Ocampo • Jocelyn Tan • Lexver Ocampo	25
25.	"Masakit sa Pamusungan Uged na Dala ko den Ipalamantag": A Phenomenological Study of Women in Child Marriages	• Jonaiden K. Kambat • Asfahanie D. Kulilong • Sahida U. Guiamad • Jamila A. Sakilan	26
26.	Hospitality 2050: How Innovation and Sustainability are Redefining the Guest Experience	• Nikola Naumov	27
27.	Evaluating the Willingness to Pay for the Adoption of Green Technologies for a Sustainable Airbnb Services in the Shared Economy: A Case of Southern Province in Sri Lanka.	• Maheshi Kaushalya Ukwaththa Liyanage • Wewala adikaramlage Madhushani Kaushala Adikaram	28
28.	Engagement of Stakeholders in the Implementation of Occupational Safety and Health Programs in Micro-Business Enterprises	• Oscar G. Paris, MHRM • Raymundo H. Pawid • MA Pshyc; Maricris P. Lad-ey Neyney • MA Pshyc;Wagner Grande • MBA, Leonard T.	29

		Apilis, PhD	
29.	Growing Africa-Asia Business & Entrepreneurship Ecosystems in Forest, Beekeeping, and Nutrition & Medicine through Kijiji cha Nyuki, Singida – Tanzania.	• Apr. Philemon Josephat Kiemi • Dr. Raymond Salanga • Prof. Nyakomo Marwa	30
30.	Development of "JOB Labor Market Card Game", an Instructional Tool in Labor Economics Course	• Jameson N. Estrada • Lim Seong Pek	31
31.	Circularity: An Emblematic Reflection on Broader Sustainability Transitions	• Rabab Raydan	32
32.	MSMEs and Rural Economic Transformation: Cross-Country Evidence from Indonesia and Malaysia	• Amena Sibghatullah • Indah Fatmawati • Firdaus Abdullah • Mariam Sohail	33
33.	Rfid Technology in Ruminant Management	• Dr. Ma. Melanie Ablaza-Cruz	34
34.	Innovation Challenges for SMEs in the Blue Economy: Insights from the Portuguese Maritime Sector	• Ribeiro, Henrique • Rkibi, Tawfiq • Figueiredo, Ronnie	35
35.	Sustainable Blockchain-Based Loyalty Platform for Urban Areas with Low Population Density	• Ronnie Figueiredo • Fabio Cardoso • Diana Leitão • Daniel Timóteo	36
36.	Navigating the Shadow Market: Innovative Strategies for Regulating Unregistered Short-Term Rental Accommodation (STRA)	• Sarina Mohamad Nor • Rudzi Munap	37
37.	Memorials and Mood: The Impact of Dark Tourism on Visitors' Emotional Experiences	• Apolinar P. Datu • Eileen A. Enriquez • Katrina R. Casue • Rommel H. Orquiza • Olivia L. Yosa Cristopher T. Takano • Chona S. Lajom	38
38.	Incorporation of Waste Eggshell and High-Density Polyethylene in Asphalt Concrete for Improved Durability	• Alvaro V. Rosales • John Isaac D. Lausin • Patricia U. Macalinao	39
39.	Recent Advances in Fly Ash/Fe3O4/TiO2 Composites for Dye Adsorption: A Comprehensive Review	• Ermin Riskiani • Mudasir Mudasir Nurul Hidayat Aprilita	40
40.	An Optical Laser Link for Secure Data Transmission Using Arduino and Cybersecurity Integration	• Anuradha Bakare • Pavithra Balasubramanian • Anuradha Bakare	41
41.	Enhancing Interactive Communication in Algerian EFL Classrooms Through AI-	• Amina Benabdelouahab	42

	Powered Pronunciation Feedback Tools	• Mustafa Amrate	
42.	The Role of AI Driven Feedback Tools in Enhancing Writing Proficiency in Algerian EFL Students	• Zernadji Karima • Prof.Saihi Hanane	43
43.	Experiences and Transformative Role of Education Among Persons Deprived of Liberty	• Johnnel S. Cagod, Mpm • Federico Jr. H. Gonzaga, Rcrim, Mscj	44
44.	Morphological Awareness Among Alternative Learning System (Als) Learners: Toward Inclusive and Gender Responsive Literacy Practices	• Calalas, Mary Germi G. • Shirley A. Calugcugan	45
45.	Addressing Academic, Behavioral, and Psychosocial Challenges of College Students: An Evaluation of Guidance and Counseling Interventions at Saint Joseph's College of Baggao	• Visitacion L. Caldez	46
46.	Nematicidal Effect of Botanical Extracts of Moringa for the Management of Root-knot Nematode of Chilli	• S. Rajeshkanna • R.M.C.S. Ratnayake • G.Puvitha	47
47.	Sustainability Roadblocks: Effect of Implementation Challenges on the Adoption of Circular Management Practices in Selected Manufacturing Firms in the Philippines	• Maria Cristina L. Desepida	48
48.	Social Media as A Marketing Tool: Perceptions of Entrepreneurship Students in Cavite State University-Imus Campus	• Cristal, Baby Kharen A. • Villa, John Joseph P.	49
49.	Sustainable Development Goals in India – In Perspective of Gender Inequality	• Dr. Krishna Roy	50
50.	The Role of Public Sector Innovations in the Competitiveness of Local Government: Evidence in the Province of Cavite, Philippines	• Marlon A. Mojica, PhD	51
51.	Dispositional Resilience, Cognitive Appraisal, and Academic Isolation of Adolescents During Online Classes Amidst Covid-19 Pandemic	• Armi Grace B. Desingaño	52
52.	Development of Big Books using the Mother Tongue-based Multilingual Education (MTB-MLE) on Climate Change and Disaster Response	• Analyn I. Diola, MSc • Philip G. Nonales, PhD • Christopher Espero, MAED	53
53.	A Fuzzy Logic-Based Decision Support System for Academic Program Selection in Higher Education: Development and	• Edward Louie M. Marin • Ricardo A. Catanghal	54

	Evaluation	Jr • Mary Jezza Saballa-Marin	
54.	Correlating Job Satisfaction and Faculty Depth Analysis of Factors-Attrition: An In Affecting Instructor Retention at Colegio de Manaoag-San Juan de Letran	• Turla Sherimae • Fandiñola Lorecel • Gorospe Dhana Alaxa • Magno Hazel Ann • Sampaga Scarlet • Amansec • Carol, Kristine G. De Vera, DBA	55
55.	Assessing the Effectiveness of Automated Dispensing Cabinets in Reducing Medication Errors among ICU Nurses in Saudi Hospitals: A Structural Equation Modeling Approach	• Khairiah M Al-Thagafi • Prof. Dr. Regidor Iii Poblete Dioso	56
56.	Free Irrigation Service Act: The Case of Communal Irrigation System (CISs) Irrigators's Association (IAs) in the Province of Tarlac	• Bumagat, Jhamil Kharl L.	57
57.	Enhancing Practices for Operational Strategies of Laundry Shops: A Focus in Water and Energy Conservation	• Macabales Jolamae • Brumuela Samantha • Competente Tony Rose • Mendoza Joshua • Punay Jenny Rose • Sernadilla Mariel • Kristine G. De Vera, DBA	58
58.	Evaluation of Service Delivery of Drug Abuse Treatment & Rehabilitation Centers (DATRCS) in Region III	• Cheryl B. Sembrano, RN, MPA-HM	59
59.	The Philippine Army's Doctrine Manual Backlogs towards an Improved Doctrine Development System	• Dennis Martinez	60
60.	Enhancing Customer Satisfaction Through Advanced Mobile Banking: A Study in Tanza, General Trias and Trece Martires City, Cavite	• Jeanet E. Parreno	61
61.	Applying Systems Thinking to Chicken Production and Consumption: A Circular Economy Perspective from the Philippines	• Elijah Jeremiah C. Abad • Cedrick John V. Alejandrino • Ernie C. Avila • Van Olem E. Benitez • Rupert Jeremiah A. Bustamante IV • Emerson G. Cabudol	62

		• Qiarrah Syrah A. Chavez • Merryrose R. Palma • Kyle Russelle P. Paredes • Margaret R. Tadeja	
62.	GUnify: A Comprehensive and Optimized Event Management Solution Utilizing the Deflate Compression Algorithm	• Ain Geuel E. Escober • Alma C. Fernandez • Rosicar E. Escober • Demelyn Monzon	64
63.	Blue Ocean Economy Strategy for Sustainable Development of Aurora	• Antonio D Bolivar III	65
64.	The Myths and Oral Traditions of the Tagakaolo Tribe Towards Environmental Protection and Preservation in Malungon, Sarangani Province	• Dr. Sheruel G. Matalandanga • Dr. Zandro P. Ibañez	66
65.	Sinapanan: "A new Feature for Food Tourism"	• Decy Derecho-Sienda	67
66.	Availability and Management of Rice Straw of Select Rice Farmers in Isabela, Philippines	• Jeffrey C. Ginez • Marcelino U. Siladan	68
67.	Enhancement of Collaborative Filtering Algorithm with the use of Energy-Based approach in Dating Applications	• Sean Timothy Archer M.Dyogi • Frenzo Archiel Dacoco	69
68.	An Enhancement of the Jaro-Winkler Fuzzy Searching Algorithm Applied in Library Search Engine	• MALAGA (Karl Benedict) • VERDILLO (Korinne)	70
69.	Sustainable Development Through Click Green Projects: Commissioning Education for A Greater Cause	• Helmer B. Montejo	71
70.	Influence of Electronic Service Quality of Biometric Authentication Technology on User Satisfaction in Electronic Banking: An Integrated Model of TAM and E-S-Qual	• Linh Hoang Vu • Duc Quyen Nguyen • Vu Hanh Ngan Nguyen • Van Giang Tieu • Khanh Chi	72
71.	Online Food Delivery Services During and After COVID–19 Epidemic with A Bibliometric Analysis	• Rahmanwali Sahar	73
72.	Creating Carbon Credits: Unveiling the Dynamics of The Asean and East Asian Market	• Suseno Hendratmoko	74
73.	Analysis of Green Viability Assessment System in Philippine Government Hospitals Towards Climate-Resilient Health Facilities	• Engr. June Philip Ruiz, MME • Mr. Glenn Cruz • Ms. Georgina Mae Zulueta	75

		• Ms. Joana Joy Lico-Almiral,MBA • Dr. Ma. Bituin Reyes, MBA	
74.	Investigating the Effects of Solanum nigrum Linn. Against Spodoptera frugiperda found in Nicotiana tabacum	• Jessica C. Ginez-Gilo • Jeffrey C. Ginez	76
75.	Intensive Teacher Training and its Impact in the Quality of Teaching and Learning Activities at Deped Camarines Sur	• Veridiano, Grace B.	77
76.	Assessment of Barriers to the Adoption of Sustainable Practices: A Mixed-Method Study in Vietnam's Construction Industry	• Nguyen Khanh An • Nguyen Phan Duc Anh	78
77.	Detection Tomato using Vgg19 and Explainability XAI	• Laatiri Youssef	79
78.	Mapping the Geographical Distribution of Anabo *(Abroma augusta Linn)* Species in Apayao	• Hannie T. Martin • Maria Christina Z. Manicad David A. Rodolfo • Ryan W. Gabit • Olivia C. Tomas	80
79.	Potential of Enhanced Probiotic (Provet) as Dietary Supplement for Growing-Finishing Pigs	• Menardo D. Villanueva, Ph.D.	81
80.	Cytotoxicity of Native Fruit Trees and Ethnomedicinal Tress	• Hannie T. Martin • Olivia C. Tomas • Ryan W. Gabit • Maria Christina Z. Manicad David A. Rodolfo	82
81.	Experiences on the Use of Generative Artificial Intelligence (AI) Tools for Research Writing Among Graduate School Students of ASC Conner Campus	• Agustina G. Pattung • Mc Ornoc Lamao	83
82.	Purchase Behavior of Restaurant Operators Towards Seafood Products in Lianga Bay, Surigao Del Sur	• July Hera G. Salomon • Harvey Kier O. Ranara	84
83.	Curriculum (Mis) Alignment: A Qualitative Study Of the Industrial Arts Work Immersion Students' Competency	• Paulino, Enrik Kristoffer L.	85
84.	SWOT Analysis on Covid 19 Pandemic Towards Business Retailers	• Dr. Rovilyn Katalbas	86
85.	Perception of Students on Individual and Collaborative Approaches in the Study of Trigonometry	• Atibagos, Nicole Anne V. • Branzuela, Fauline Joy M. • Dahipon, Ysabelle	87

		Alyssa B. • Garcia, Angielo Aies R. • Malonzo, Mariel D.C. • Nonato, Daniel Arvyn P. • Sariola Andrea	
86.	Community Needs Assessment among Residents of Barangay Palico II in Imus City, Cavite:Basis for Community-Based Extension and Development Program	• Cromwell R. Cabalu • Dr. Liane Vina G. Ocampo • Dr. Alfe M. Solina • Bernardo C. Pangilinan	88
87.	Field Performance of Large Fishtail Palm *(Caryota rumphiana Mart. var. philippinensis Becc.)* Intercropped with White Lauan (Shorea contorta)	• David A. Rodolfo • Olivia C. Tomas	89
88.	A Cross-Platform Blood Donation System with Data Analytics	• Grace S. Ibañez	90
89.	Analysis of Environmental Literacy and Sustainable Development Goals (SDGs) Competence Among Community Leaders: Bases for Technology-Assisted Module for Green Management Advocates	• Ju-Im T. Jimlan PhD, EdD, DM • Evan Anthony V. Arias EnP, DM	92

2nd International Conference on Sustainability, Innovation and Future Technologies

ABSTRACTS

Applying Prescriptive Analysis on Enhancing Philippine E-Government Websites' Performance and Accessibility

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Abstract

E-government is perceived to have the capacity to boost government services. Developing countries, comparatively, are yet in the development of implementation. Precisely, the context in these countries posed challenges for the implementation and its possible utilization. Thus, in order to determine the country's current national e-government development, this paper evaluates the current status of e-governments' performance and accessibility and identified the issues associated with its e-government development. Utilizing automated testing tools to assess the thirteen (13) e-government websites based on the common parameter in web performance and the WCAG 2.0 in accessibility. Summative review on related studies and articles with similar discussions on web design elements and web prescriptive analysis to further enhance the web performance and accessibility were also employed in the study. The results depict that several websites were still not updated as much as the transparency seal is concerned. Furthermore, with the basis behind the diminish progress of e-government are the shortage of technological infrastructure and skills, organizational concerns and lack of government guidelines among others. This study can be an instrument to develop an achievable plan to enhance e-government services along with aiding evidences on the occurrence of e-government websites in the Philippines

Keywords*: e-government, web performance evaluation, web accessibility evaluation, Philippine e-government*

Policy Model for Barangay Tinago Public Governance on Waste Management Sustainability Using Regression Analysis

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Abstract

This study investigates the effectiveness of a policy model aimed at improving waste management sustainability in Barangay Tinago, a local community in the Philippines. The model includes waste segregation, recycling programs, and public awareness campaigns. Using regression analysis, the research evaluates the impact of these policy interventions on waste reduction, recycling rates, and public participation. Results from the regression model reveal significant relationships between these interventions and improved waste management outcomes, providing valuable insights for policymakers seeking to enhance waste management sustainability in urban communities. This study aims to evaluate the effectiveness of a newly introduced waste management policy model in Barangay Tinago using regression analysis. The model incorporates key interventions such as waste segregation, recycling programs, and public awareness campaigns. The objective is to understand the impact of these initiatives on waste reduction, recycling rates, and community participation.

Keywords*: Waste Management, Sustainability, Public Governance, Regression Analysis, Barangay Tinago, Policy Model, Waste Reduction, Recycling, Public Participation*

TikTok Tourist Vlogs: Their Impact on Travel Decisions in Manila

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Abstract

This study investigates the impact of TikTok tourist vlogs on travel decision-making among visitors to Manila, Philippines. With the rise of social media as a tool for information dissemination and influence, TikTok has emerged as a significant platform where travel content is widely consumed, especially by younger audiences. Unlike traditional travel media, TikTok vlogs are typically user-generated, visually engaging, and highly accessible, often portraying authentic and spontaneous experiences that resonate with viewers. This research employs a mixed-methods approach, combining quantitative surveys and qualitative interviews with both local and foreign travelers who have engaged with TikTok content before or during their visits to Manila. The findings reveal that TikTok vlogs play a considerable role in shaping tourist preferences, including the selection of destinations, food establishments, and cultural experiences. The relatability of vloggers, the concise format of the content, and the algorithmdriven exposure to trending locations contribute to TikTok's persuasive power. Moreover, travelers are found to trust peer-generated content more than conventional advertisements, viewing TikTok as a source of real-time, grassroots-level travel advice. This study highlights the implications for local tourism stakeholders, suggesting a need to adapt marketing strategies to align with current digital trends. By leveraging TikTok as a promotional tool, tourism authorities and businesses in Manila can enhance visibility, attract tech-savvy travelers, and promote lesser-known destinations within the city. Ultimately, the study underscores the evolving dynamics of tourist behavior in the digital age and the growing influence of social media platforms in the tourism sector.

Keywords: *TikTok, Tourist vlogs, Travel decision-making, social media influence, Digital tourism, User-generated content, Manila tourism, Travel behavior, Destination marketing, Short-form video platforms*

TikTok as a Powerful Tool for Showcasing Philippine Destinations: Its Influence on Tourism and Digital Marketing

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Abstract

Evolving played a transformative role in promoting tourism, with TikTok emerging as a powerful platform for showcasing Philippine destinations. With its short-form video format, interactive features, and algorithm-driven content distribution, TikTok enables users to discover, explore, and engage with travel-related content unprecedentedly. This study examines TikTok's impact on destination marketing in the Philippines, analyzing how viral travel videos, influencer endorsements, and user-generated content contribute to the visibility and popularity of various tourist spots. By leveraging immersive storytelling, aesthetic visuals, and trending challenges, TikTok has positioned itself as a key tool for inspiring travel interest and influencing tourism behavior. The study explores how the platform democratizes travel promotion by allowing both official tourism boards and independent travelers to share authentic and diverse perspectives of the country's breathtaking landscapes, cultural heritage, and lesser-known attractions. Additionally, the research investigates the economic and social effects of TikTok-driven tourism, highlighting its role in boosting local businesses, increasing visitor engagement, and promoting sustainable tourism practices. However, alongside its benefits, TikTok's influence on tourism also raises challenges, such as the risks of over-tourism, environmental degradation, and the authenticity of travel narratives. This study draws on TikTok's role in destination marketing while offering insights into how stakeholders—including government agencies, tourism operators, and digital content creators—can harness its potential responsibly. The findings suggest that TikTok is more than just a social media trend; it is a revolutionary digital marketing tool that significantly shapes modern travel preferences and destination branding. As Philippine tourism continues to evolve in the digital age, understanding the impact of TikTok can help stakeholders develop innovative, responsible, and sustainable marketing strategies to attract both local and international travelers.

Keywords*: TikTok tourism, Philippine destinations, Digital marketing, Travel promotion, Viral travel trends, Destination branding, Influencer marketing, Tourism engagement, Sustainable tourism, Cultural heritage promotion, Local business growth, Digital storytelling.*

Students' Perceptions regarding Food Preparation Practices in a Private School in Manila Concessions: Addressing Challenges and Opportunities for Improvement

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Abstract

This study explores how students perceive the food preparation practices of a concessionaire in a private school in Manila to identify areas for improvement and uncover opportunities for a better dining experience. Since students rely on school-based food services for convenience and nutrition, their insights are essential in shaping a food environment that supports both their health and satisfaction. Using surveys and informal discussions, the research gathered feedback from senior high school students on important aspects such as food safety, cleanliness, taste, variety, and value for money. The results showed that while many students appreciate the variety and accessibility of meals offered, they also expressed concerns about hygiene practices. Specific issues mentioned include inconsistent food quality, questionable sanitation during food handling, and the lack of visible cleanliness in preparation areas. Students noticed that staff do not always use gloves or hairnets, which led to doubts about food safety. Despite these concerns, students remain hopeful and eager for change. They suggested practical solutions like more transparent food preparation areas, regular health and safety checks, and healthier meal options. Many also expressed a desire for their feedback to be considered in future improvements. Ultimately, the study emphasizes the importance of listening to students' voices when it comes to school food services. By addressing their concerns and acting on their suggestions, schools and concessionaires can create a more positive, safe, and student-friendly food experience—one that not only fills stomachs but also builds trust and well-being in the school community.

Keywords*: Food preparation, school concessionaires, hygiene, food safety, nutrition, student health, training, resources, policy compliance, collaboration.*

Evaluating Grab's Role in Enhancing Commuter Experience as a Digital Transport Assistant in Metro Manila

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Abstract

This study evaluates the role of Grab as a digital transport assistant in enhancing the commuter experience within Metro Manila's complex urban mobility landscape. With increasing demand for reliable and efficient transportation solutions, the research investigates how Grab's platform features—such as real-time vehicle tracking, route optimization, digital payments, and safety mechanisms—address key commuter needs in a congested metropolitan context. A mixed-methods approach was adopted, incorporating quantitative data from a structured survey of 150 Grab users and qualitative insights from in-depth interviews with 10 regular commuters and transport policy professionals. The study analyzed commuter perceptions regarding reliability, accessibility, affordability, convenience, and safety, using descriptive statistics and thematic content analysis. Results indicate that Grab significantly improves commuter satisfaction by offering flexible, user-friendly, and responsive transport services. Users value the platform's convenience, driver accountability, and transparent fare computation. However, challenges persist in the form of surge pricing during peak hours and limited coverage in peripheral urban zones. The findings suggest that digital ride-hailing platforms can play a critical role in complementing existing public transport systems and advancing commuter-focused mobility strategies. The study recommends policy integration between digital transport providers and urban planners to enhance multimodal transportation systems and support data-driven infrastructure development. This research contributes to scholarly discourse on smart mobility and offers practical implications for policymakers and urban transport stakeholders aiming to improve the commuter experience in rapidly urbanizing regions.

Keywords: *Commuter Behavior, Digital Ride-Hailing, User Experience, Urban Transportation, Travel Decision-Making, Metro Manila Mobility*

Advancing Quality Education in Architecture: A Comparative Study of Traditional and Digital Learning Approaches

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Abstract

This study aimed to compare the effectiveness of traditional and digital learning methods in developing design and visualization skills among fourth-year architecture students at an autonomous private higher education institution in Cebu City, Philippines. Specifically, it examined how each approach contributed to accuracy, creativity, efficiency, and spatial understanding skills essential to architectural learning and practice. The research was grounded in the principles of Design Thinking, which emphasizes empathy, ideation, and iterative problem-solving. This framework guided the design of the study and provided a deeper understanding of student learning experiences. A quantitative and comparative research design was used. A total of 187 students were selected through simple random sampling. Data were collected using a structured questionnaire, developed by the researchers and validated by experts. Descriptive statistics and independent sample t-tests were applied to analyze the results. Findings showed that digital learning methods significantly improved students' accuracy and efficiency, particularly in tasks involving precision and technical output. Traditional learning methods, however, were more effective in supporting creative thinking and conceptual planning. Many students found that combining both methods traditional and digital offered the most balanced and effective approach to developing their design and visualization skills. The study concludes that a blended learning model best supports skill development in architectural education. It highlights the importance of flexible, student-centered teaching methods that draw from both traditional foundations and modern technologies. This approach not only improves learning outcomes but also supports the goals of Sustainable Development Goal 4 by promoting quality, inclusive, and future-ready education. The findings suggest that integrating thoughtful pedagogy with digital tools can better prepare architecture students for the evolving demands of design practice.

Keywords*: Architecture Education, Creative Thinking, Design Thinking Methodology, SDG 4 Quality Education*

Renewable Energy Technologies towards Sustainability

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Abstract

In the last decades, renewable energy capacity around the world has grown dramatically, led by solar photovoltaic and wind power. Renewable energy is energy that comes from a source that won't run out, natural and self-replenishing, and usually have a low- or zero-carbon footprint. The United Nations Sustainable Development Goals, SDG 7 Affordable and Clean Energy: Ensure access to affordable, reliable, sustainable and modern energy for all and SDG 13Climate Action : take urgent action to combat climate change and its impacts. There have been some major developments in the solar PV, including the use of perovskite material, transparent solar panels for integration into windows and bifacial solar panels. The Vortex Bladeless is a resonant wind generator". Interconnectors already provide a way to share electricity between countries safely and reliably. Offshore hybrid assets (OHAs) will allow clusters of offshore wind farms to connect all in one go. Synthetic biology is used to produce bio-oil from algae thus lowering the dependency of the transportation sector on fossil fuels. A paper-based biofuel cell system is used to generate electricity. Technologies are improving the efficiency of converting biogas into high-quality bio methane. Grid-scale batteries, flow batteries, and hydrogen storage — are one of the most crucial and effective ways of integrating renewable energy sources efficiently and reliably to the grid. Smart grids bring the power of networked, interactive technologies into an electricity system, giving utilities and consumers alike a new level of control over energy use. In conclusion, the rapid advancements in renewable energy technologies are not just transforming our energy landscape but are also pivotal in driving us towards a more sustainable future. From cutting-edge solar and wind innovations to breakthroughs in energy storage and grid integration, these technologies are enhancing efficiency, reducing costs, and minimizing environmental impact.

Keywords*: renewable, sustainability, RE technologies*

Smart and Equitable Library Access: A Human-Centered Time-Tracking Policy for Congestion Management in a Cebu-Based Higher Education Institution

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Abstract

Library congestion is a persistent issue in many higher education institutions, limiting student access to study spaces and affecting overall academic productivity. This study explored the extent of congestion in the main library of a private higher education institution in Cebu City, Philippines, and examined student receptiveness to time-tracking policies as a potential solution. Specifically, it assessed patterns of library usage, seat occupancy behaviors, and perceptions of regulated stay durations through system-based interventions. A mixed-methods approach, guided by Human-Centered Design principles, was employed. Data collection included structured observations to monitor space utilization and seat turnover, student surveys with Likert-scale and open-ended questions, and analysis of entry-exit logs to identify peak usage periods and average dwell times. Findings revealed that specific library zones particularly individual study areas and group tables consistently experienced high occupancy with low turnover, designating them as congestion hotspots. Survey results showed moderate support for time-tracking policies, especially when flexible rules are applied during high-demand periods such as examinations. System log data confirmed peak congestion during midterms and finals. The study concludes that a time-tracking policy, developed with student-centered considerations, could significantly improve seat circulation, reduce overcrowding, and promote more equitable access to library resources. By integrating digital infrastructure to optimize space management, the research aligns with Sustainable Development Goals (SDG) 4 on Quality Education and SDG 9 on Innovation and Infrastructure. It highlights the potential of technology-driven solutions in creating inclusive, efficient, and student-responsive learning environments.

Keywords: *Human-Centered Design, Library Congestion, Mixed-Method Research, Sustainable Development Goals, Time-Tracking Policy*

Thematic Mapping of Landslide Susceptibility in Nueva Vizcaya: Enhancing Disaster Resilience and Management Strategies

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Abstract

The province of Nueva Vizcaya had experienced landslide occurrences almost every year for the past decade, and last year, the municipality of Ambaguio had experienced landslides causing seven deaths, damages to properties, and degradation of environment. This study aimed to map the causative factors of landslide susceptibility in the municipality of Ambaguio, province of Nueva Vizcaya. The purpose of this study is to provide significant information to the Local Government Unit particularly the Municipal Disaster Risk Reduction and Planning Office, to mitigate disasters brought by landslides. The Geographic Information System and Analytical Hierarchy Process tools were utilized for the thematic mapping and weighting, respectively. The vulnerability of landslide was classified into four classes, namely low, moderate, high, and very high susceptibility. The total area of coverage in hectares in each susceptibility class was also determined to map the individual causative factors. The study reveals that slope, soil type, elevation, precipitation, and landcover with relative weights of 24.68%, 18.00%, 15.07%, 14.49%, and 10.89%, respectively, were the most influential factors of landslide susceptibility, whereas distance from roads and rivers with relative weights of 9.99% and 6.87%, respectively were identified as the least influential factors contributing to landslide susceptibility. To avoid reoccurrences of landsliding, reforestation and preservation of the ecosystem is highly recommended. Policies for land utilization and management for disaster risk reduction to be considered by the concerned authority are enforcement of slope-based zoning regulations, promotion of reforestation and forest conservation, adaptation of sustainable farming practices, development of a community-based landslide early warning system, and integration of disaster risk reduction in local land use and development planning.

Keywords*: Analytical Hierarchy Process, causative factors, Geographic Information System, landslide susceptibility, thematic mapping*

Comparison of Direct Cost and Turnaround Time (TAT) of Testing Heavy Metals in Water and Wastewater Using Flame AAS and ICP-OES Methods

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Abstract

In the field of heavy metal analysis, laboratory owners often face significant decisions regarding instrument selection, primarily focusing on acquisition cost of equipment and compliance with detection limits. However, a crucial aspect that is frequently overlooked is turnaround time (TAT). As the analytical testing industry evolves, understanding all associated costs and TAT becomes essential for making informed choices. This study presents a thorough comparison of two prominent methods—Flame Atomic Absorption Spectroscopy (FAAS) and Inductively Coupled Plasma Optical Emission Spectroscopy (ICP-OES)—specifically for analyzing heavy metals in water and wastewater samples. Conducted in a reputable laboratory that complies with stringent ISO 17025:2017 standards for potable water and wastewater analysis, this research gathered cost data directly from laboratory files, while TAT was meticulously recorded through systematic observations and laboratory records. The findings reveal a significant difference in TAT: FAAS demonstrates an impressive timeline of 4 days, 8 hours, and 27 minutes, whereas ICP-OES requires 7 days, 21 hours, and 31 minutes. In terms of direct costs, FAAS is priced between 15% and 38% of the current market rate, while ICP-OES varies from 16% to 41%. Notably, the primary cost drivers include gas consumption (34.73% for FAAS and 36.62% for ICP-OES) and spare parts required for maintenance (21.12% for FAAS and 16.29% for ICP-OES). In conclusion, the FAAS method clearly emerges as both more cost-effective and efficient regarding TAT. These critical insights empower laboratories to enhance their operational effectiveness, thereby addressing the growing customer demand for timely and affordable results. The findings serve as a valuable resource for organizations considering options for heavy metal analysis, guiding them towards informed investment choices and operational enhancements.

Keywords*: Analysis of heavy metals, Direct cost, Flame AAS and ICP-OES methods, Turnaround time (TAT)*

Term Onset Vs. Term Completion: A Comparative Analysis On First Year Students' Psychological Well-Being

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Abstract

This study conducted a comparative and descriptive analysis of the holistic well-being of first-year students at Systems Plus College Foundation (SPCF) between the onset and completion of the academic semester. Specifically, it assessed students' mental health and quality of life using two standardized instruments: the Mental Health Inventory (MHI-38) and the WHO-QOL-BREF. A total of 986 participants—representing 64% of the first-year student population—completed both pretest and posttest assessments via Google Forms. Employing a pretest-posttest quantitative research design supplemented with qualitative insights, the study examined temporal changes in psychological well-being and environmental perceptions. Results indicated significant variations in mental health and quality of life scores, particularly among students enrolled in emotionally and relationally intensive disciplines such as nursing and hospitality. These findings suggest that academic context substantially influences student well-being and emphasize the need for context-specific mental health interventions. The study offers valuable implications for institutional policy, faculty engagement, and future research aimed at promoting psychological resilience and quality of life in higher education settings.

Keywords: *Student Well-being, Quality of Life, Pretest-Posttest Design, First-Year Students, Comparative Analysis*

The Relationship Between Socioeconomic Status and Cybersecurity Threat Exposure of College Students of a Private Higher Education Institution in Cebu City

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Abstract

In today's increasingly digital environment, college students in Cebu City face heightened exposure to cybersecurity threats such as phishing, identity theft, and unauthorized access to personal data. This study investigates the relationship between socioeconomic status, specifically family income, and the frequency of cybersecurity threat encounters among students at a private higher education institution. Utilizing a mixed-methods approach, data were collected from 351 randomly selected respondents via a researcher-designed questionnaire on Microsoft Forms. To enrich the quantitative insights, semi-structured interviews were conducted with a subset of participants through Microsoft Teams. Quantitative findings indicate an overall average threat exposure score of 2.02, suggesting low to moderate experience with cybersecurity risks. A breakdown by income levels reveals a decreasing trend in exposure as income increases from 1.95 among those earning below ₱10,000 to 0.39 for those earning above ₱60,000. However, a t-value of -0.35 indicates no statistically significant correlation between family income and cybersecurity vulnerability. Qualitative data support the statistical analysis. Regardless of income, students exhibited similar digital usage patterns focused on communication, entertainment, and academic purposes. While some students noted financial barriers to device or internet access, most reported that their socioeconomic status did not significantly limit their digital participation. This study highlights the importance of inclusive and accessible cybersecurity education as a component of digital literacy and sustainable education systems. By addressing digital safety across all socioeconomic levels, institutions can contribute to more equitable and resilient digital learning environments supporting broader goals of sustainability, reduced inequalities, and responsible technology use in higher education.

Keywords*: Cyber security Threats, Digital Literacy, Mixed-Method Research, Socioeconomic Status, Sustainable Education*

Passive Cooling Strategies in Tropical Climates: Mechanical Ventilation and Building Envelope Optimization for Energy-Efficient Structures

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Abstract

Buildings globally contribute significantly to energy consumption and greenhouse gas emissions, with tropical climates facing unique challenges due to high temperatures, humidity, and intense solar radiation. This necessitates a shift from energy-intensive mechanical cooling towards sustainable alternatives. This research paper conducts a comprehensive review of existing literature to explore the efficacy of passive cooling strategies, the strategic role of mechanical ventilation, and building envelope optimization in achieving energy-efficient structures in tropical regions. The study synthesizes findings on various passive techniques, including natural ventilation (e.g., cross-ventilation, stack ventilation), shading devices (e.g., overhangs, vegetation), and advanced building materials (e.g., thermal mass, insulation, reflective coatings, phase change materials). It also analyzes the integration of mechanical and hybrid ventilation systems, highlighting their potential for energy savings and improved indoor air quality when complementing passive approaches. Furthermore, the paper evaluates the impact of building envelope design parameters, such as orientation, shape, and window-to-wall ratio, on overall thermal performance. A key finding is the inadequacy of static thermal comfort models for tropical climates, advocating for the adaptive thermal comfort model which accounts for occupant behavior and environmental interaction. The review identifies critical gaps in current building codes, the limited empirical research on hybrid ventilation in humid tropics, and challenges related to material durability and urban constraints. The paper concludes that achieving truly energy-efficient and comfortable structures in tropical climates requires a synergistic integration of optimized passive design, intelligent building envelope performance, and strategically deployed mechanical ventilation within a framework that embraces adaptive comfort and addresses local socio-economic and environmental contexts. Recommendations are provided for future research, policy development, and practical implementation to foster sustainable building development in these vulnerable regions.

Keywords*: Passive Cooling, Mechanical Ventilation, Natural Ventilation, Energy Optimization.*

Optimizing HVAC Systems through Advanced Mechanical Design and AI Integration for Sustainable Smart Buildings

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Abstract

Global energy consumption and carbon emissions present pressing environmental challenges, with the building sector accounting for approximately 40% of total energy consumption and 37% of global greenhouse gas (GHG) emissions. Heating, Ventilation, and Air Conditioning (HVAC) systems are major contributors to this footprint, consuming between 35% and 65% of a building's total energy. This necessitates innovative solutions for enhanced energy efficiency and decarbonization within the built environment. This paper explores the synergistic potential of advanced mechanical design principles and Artificial Intelligence (AI) integration to optimize HVAC systems, fostering the development of sustainable smart buildings.

A systematic literature review, primarily focusing on publications from 2018 onwards, was conducted. The review synthesized findings on HVAC optimization, advanced mechanical design, AI applications (including Machine Learning, Deep Learning, and Reinforcement Learning), sustainable smart building concepts, and their intricate interconnections. The analysis reveals that advanced mechanical designs, such as Variable Air Volume (VAV) systems, energy recovery ventilators, optimized insulation, and efficient chilled water systems, significantly enhance HVAC efficiency and indoor air quality. This is complemented by the transformative impact of AI integration, which leverages machine learning algorithms, predictive analytics, and Internet of Things (IoT) sensors to enable dynamic control, accurate energy demand forecasting, precise thermal comfort optimization, and proactive predictive maintenance. AI-driven HVAC optimization has consistently demonstrated substantial energy savings, with reported reductions ranging from 10% to 40% in various building types, alongside notable improvements in occupant comfort and reduced operational costs. This combined approach significantly contributes to achieving net-zero energy buildings and broader sustainability goals by minimizing carbon footprints and extending equipment lifespan. Despite these advancements, challenges such as high initial installation costs, data privacy concerns, interoperability issues with legacy systems, and the imperative for skilled personnel continue to impede widespread adoption. The integration of advanced mechanical design with AI is therefore crucial for the continued evolution of sustainable smart buildings, necessitating further research into scalable, cost-effective, and ethically sound solutions to overcome existing barriers and fully realize their environmental and economic benefits.

Keywords: *HVAC Optimization, Artificial Intelligence, Smart Buildings, Energy Efficiency, Sustainable Building Design, Net-Zero Energy Buildings*

Evaluation of the Effectiveness of Rice Hull Biochar Mixed with Soils from Mining Areas in Plant Growth

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Abstract

This study investigated the impact of various rice hull biochar amendments on the quality of mine-affected soil, specifically focusing on its suitability for Marigold (Tagetes spp.) growth. Four distinct treatment ratios, comprising garden soil, mine soil, and biochar, were evaluated for their effects on soil pH, nitrogen (N), phosphorus (P), and potassium (K) levels prior to planting. Initial soil analysis revealed high pH and low nutrient content across all treatments. The introduction of biochar generally led to a slight decrease in soil pH, which is beneficial as it enhances nutrient availability. Among the tested ratios, the treatment with a 50-30-20 (garden soil-mine soil-biochar) composition demonstrated the most promising results, particularly in significantly increasing phosphorus availability. However, nitrogen and potassium levels remained low across all treatments, indicating that while biochar can improve phosphorus availability but additional amendments are necessary to address deficiencies in other crucial nutrients like N and K. Statistical analysis of the pre-planting soil data, however, indicated that the observed differences among treatments were not statistically significant at the 5% level. This suggests that the variations might be attributable to chance rather than the direct effects of the biochar amendments, aligning with existing literature that highlights the variable efficacy of biochar based on soil type, biochar composition, and environmental factors. Studies by Jeffery et al. (2011) and Mukherjee and Lal (2023) further underscore that non-significant results can arise from limited sample sizes or the intricate interactions between biochar and soil components. Despite the non-significant statistical findings in the initial soil analysis, marigold plants were observed to grow even without biochar, albeit with limited development. Notably, treatments containing 30% biochar content promoted the most developed plant growth, likely due to improved soil structure, enhanced nutrient availability, and better water retention attributed to the biochar. The study also recognized marigold's capacity for phytostabilization in heavy metal-contaminated soils. These findings collectively suggest that higher levels of biochar can enhance plant resilience and growth in nutrient-poor soils, positioning it as a valuable amendment for improving soils in mining-affected areas.

Keywords*: Biochar, Mining, Soil Rehabilitation, Bioremediation*

Investigating Factors Affect Indigenous Knowledge Based Names and Naming Practice in Maale Society in South Omo Zone, Ethiopia.

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Abstract

The primary aim of the research was to explore the factors influencing indigenous knowledge-based names and naming practices among the Maale Society in South Omo Zone. For this purpose, a descriptive survey design was utilized. Purposive sampling technique was used based on the characteristics of the participants. Twelve parents from the Maale society were selected for in-depth interviews, along with one culture and tourism officer, ten individuals who had changed their names to modern names for key informant interviews, and ten participants for focus group discussions in two separate groups. Thus, the total study population consisted of thirty three individuals. Three data collection tools were employed: in-depth interviews, key informant interviews, and focus group discussions. The data collection process involved conducting in-depth interviews first, followed by key informant interviews and focus group discussions. The results of the study revealed that the Maale people follow various traditions when naming their babies based on indigenous knowledge. Factors such as birth date fate, birth season, days of the week, and family background are all taken into consideration. The wishes, happiness, and sadness of the family are also important. Preserving the Maale society's cultural heritage for future generations requires a strong emphasis on indigenous knowledge-based naming practices. Unfortunately, these practices are currently in decline in the study area. Therefore, the Maale woreda's culture and tourism office, along with relevant organizations, should raise awareness among youth to support and maintain the existing indigenous knowledge-based names and naming practices.

Keywords*: Indigenous Knowledge; Maale Society; Names; Naming Practice*

Data-Driven Prediction to Cropping Intensity in Chittagong Using Machine Learning on Precipitation Impact

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Abstract

Climate variability and significant change in rainfall patterns over past years have gradually disrupted agricultural productivity in many parts of South Asia, including Chittagong, Bangladesh. Particularly for Chittagong, though the division has a mixture of coastal, hilly and plain land, the intensity of cropping has received relatively less attention to research in the context to its regular climate. Our research aims to connect a predictive model to estimate cropping intensity and analyze the influences of rainfall fluctuations and climate change as well. We collected historical meteorological data including precipitation and temperature, crop yield records, and satellite-derived vegetation indices from publicly available databases and processed to create a robust dataset spanning the last two decades. Various machine learning algorithms like - Linear Regression, Random Forest, XGBoost, LightGBM, MLP and Support Vector Regression - were employed to interpret precipitation records of Chittagong, Bangladesh. The models demonstrated high predictive accuracy with Random Forest to achieve the best performance. This paper reveals the applicability of empirical analysis based approaches in agricultural planning and climate adaptation. Future work will focus on incorporating remote sensing and real-time weather inputs to develop an early-warning system for sustainable crop management which will eventually lead the country to be self-sufficient to satisfy the demand for food in future.

Keywords: *Regression, Random Forest, MLP, Cropping Intensity, Precipitation, Crop yielding.*

Gap Analysis of Higher Education Service Quality: A Case Study of A Private Institution in the Philippines

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Abstract

Student attrition may be difficult for educational institutions since it has a significant influence on revenue, profitability, graduation rate, sustainability, and reputation. However, when students have unmet expectations about institutional variables such as instructional design, school facilities, and student services, they are likely to be unsatisfied and opt not to continue their studies at the institution. This comparative study aimed to examine if students' expectations for academic service quality are delivered by the Institution. The data was gathered from 322 senior high school and college students currently enrolled at the Institution. Mean and standard deviation was utilized to assess student expectations and experience, and the Paired Sample T-Test was utilized to evaluate whether the difference is statistically significant. The data clearly show that students' expectations for service quality outperformed their actual experiences in all aspects. This continuous trend highlights opportunities for institutional reform and alignment between perceived quality and provided services.

Keywords:*Student Attrition, Academic Service Quality, Student Expectations, Student Experience, Higher Education, Service Quality Gap*

Exploring the Relationship Between Service Gaps, Student Satisfaction, and Institutional Commitment: A Case Study of an Educational Institution in the Philippines

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Abstract

This study looked at the gaps in service delivery and how students described their satisfaction levels, and their commitment to the institution at Systems Plus College Foundation (SPCF). The present study used adapted and validated tools based on the SERVQUAL framework in education (Ahmed & Masud, 2014), the Student Satisfaction Scale (Douglas et al., 2014), and the Institutional Commitment Scale (Davidson et al., 2009). This study used quantitative methods to analyze the differences between what students expected and their actual experiences across seven service dimensions. Using descriptive and inferential statistics, the results showed consistently negative service gaps, which means that SPCF students' expectations were not fully met. Even with these gaps, there were significant positive connections between several dimensions of service quality, especially responsiveness, assurance, tangibles, and academic programs, and student satisfaction. Additionally, student satisfaction was identified as having a strong relationship with institutional commitment, while individual service gaps had limited direct links to commitment. These findings highlight the need to manage student expectations, keep improving service delivery, and focus on satisfaction as a main goal for better student retention. The study suggests recommendations for institutional decision-makers and future researchers to help shape policies, improve services, and assess student experiences and loyalty over time in higher education.

Keywords:*Service Quality, SERVQUAL, Student Satisfaction, Institutional Commitment, Higher Education, Student Retention*

A Critical Evaluation of Working Capital Management Strategies and Profitability

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Abstract

This study critically evaluates the relationship between working capital management (WCM) strategies and profitability in publicly listed companies in Thailand, addressing a gap in the literature concerning the Thai business environment. It analyzes this relationship considering Thailand's unique economic dynamics and the prevalence of small to medium-sized enterprises reliant on short-term financing. The research employs both aggregate and disaggregate analyses of WCM strategies, utilizing key metrics such as the average inventory turnover period (ITP), average receivables collection period (ACP), average payment period (APP), and cash conversion cycle (CCC). The disaggregate analysis reveals mixed results, with some instances showing no clear association between WCM strategies and profitability. However, the aggregate analysis demonstrates a strong, negative correlation between WCM and profitability. Further investigation into individual working capital components reveals a robust positive relationship with profitability, except for the ACP, which shows a statistically weak association. Examining two conglomerates listed on the Thailand Stock Exchange from 2016 to 2020, the study utilizes a positivist approach with quantitative data analysis. The findings indicate that a more conservative WCM strategy is associated with lower profitability, while a more aggressive strategy can lead to increased profitability. The study concludes that WCM strategies significantly impact profitability in Thai listed companies. It recommends future research to explore industry-specific dynamics, incorporate qualitative data, and investigate other control variables.

Keywords: *Average Inventory Turnover Period, Average Payment Period, Average Receivables Collection Period, Cash Conversion Cycle Profitability, Working Capital Management*

Development of an Online Job Application System with Decision Support for Public Employment Service Office

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Abstract

The modernization of old employment systems is important due to the swift advancement of technology and the growing need for effective public services. The goal of this project is to create an innovative online job application system that is customized for the Public Employment Service Office (PESO) in Imus, Cavite, and integrated with a decision support system (DSS). Improving the effectiveness, accessibility, and efficiency of job application procedures for employment officers and job searchers is the main goal of this research. The system that was designed includes a user-friendly online interface that makes it easier for job searchers to submit applications, track them in real-time, and automatically match them with suitable opportunities based on their preferences and qualifications. The platform's decision support system makes use of modern algorithms and data analytics to help employment officers make well-informed decisions, improve the matching procedure, and handle job placements more skillfully. The system's robustness and dependability were ensured via a thorough Agile development process that used a feature-driven approach and included requirement analysis, system design, implementation, and testing. In order to meet particular requirements and address particular difficulties, the research includes broad consultations with stakeholders, including job seekers, employment officers, and IT specialists. Overall, the quality characteristics of all indicators mentioned received a grand mean score of 3.47, indicating a "Strongly Agree" rating. This suggests that the application functions effectively, is user-friendly, provides reliable information, and satisfies users in terms of portability and security. The results demonstrate significant improvements in the overall efficiency of the employment application process,reduction in processing time, and enhanced user satisfaction. The integration of a decision support system also provides valuable insights and data-driven recommendations that aid in strategic planning and operational decision-making. This capstone project contributes to the field of e-Government and employment services by offering a scalable and adaptable solution that can be implemented in similar contexts, potentially transforming the landscape of public employment services in the Philippines and beyond.

Keywords*: Decision Support, Public Service, Job Portal, e-Government, Employment Systems*

Mobile Application for Disease Classification of Coffee Plant Leaf Using Yolov10 Deep Learning Technique

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Abstract

Coffee plants suffer different diseases that greatly affects its growth and production both on its quality and quantity. Especially to coffee leaf rust that is mostly infecting the Coffea canephora and Coffea liberica var. dewevrei. Yet this industry has a great contribution to Philippines economy having a production increase of 1.8% from 2.72 metric tons of beans according to Philippine Statistics Authority or PSA (Philippine Statistics Authority, 2023). Manual observation to examine visually and by feel to affected plant leaves. Being prone to human error and need human labor, hence a need to develop a reliable and effective approach that detects such disease and locate the affected area. Machine learning has been popular in all field even in disease detection of plants. The software used to developed a system is Android application using React Native Expo. It allows users to capture images of coffee leaves, which processed using the YOLO (You only look once) object detection algorithm to identify and detect any diseases through HTTP requests. YOLO architecture focus on image object detection using bounding box regions and known for speed and accuracy. Rapid Application Development model was used for real-time object detection of selected coffee types and their diseases

The evaluation result for 40 respondents shows an overall very satisfactory result with an overall mean of 4.479 meeting expectation on all category of the ISO/IEC standard 25010:2011 while having an excellent result on usability and performance efficiency. Along with the performance of the model having a 75% accuracy on leaf detection.

Keywords: *Coffee plants, Coffea liberica, Coffea canephora, YOLOv10*

AI-Powered Marketing: Consumer Perspective on AI-Assisted Digital Marketing Tools Effectiveness in E-Business Platforms

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Abstract

Artificial intelligence has transformed e-commerce in the digital economy due to its utility in personalizing recommendations, providing real-time assistance, and enabling predictive analytics. While AI tools are widely used to enhance marketing efficiency, little empirical research has examined consumers' perceptions of their actual effectiveness. The objective of this study is to determine the user perceptions of AI-assisted marketing tools across e-business platforms, with an emphasis on the aspects of trust, relevance, and performance. An example of descriptive research would be thematic analysis, which utilizes data from 112 purposively selected online respondents from 18 years upwards and engaged within the last six months with chatbots, recommendation systems, and predictive analytics through an online survey, and automated data for analysis with descriptive statistics.Findings indicated that smart logistics and parcel tracking had the highest effectiveness ratings, particularly due to the provision of timely updates and effective delivery planning. Personalized product recommendations and predictive analytics were also regarded as valuable, but for the discovery of products by users while leveraging the aspect of questioning the preciseness for forecasting one's needs. Chatbots were appreciated for their ease of use, but unfair competition in comparison to human assistance. Gamification caused purchases but little loyalty, while fraud prevention and content moderation were very effective but not fully trusted for securing personal information.

Keywords: *e-commerce, artificial intelligence, marketing tools, security, chatbot, logistic, personalized recommendations*

"Masakit sa Pamusungan Uged na Dala ko den Ipalamantag": A Phenomenological Study of Women in Child Marriages

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Abstract

Despite the growing body of research and rising civil laws on child marriage, the phenomenon persists. This qualitative study utilized a descriptive phenomenological design, focusing on and highly concerning the narratives of women who had experienced child marriage. It explores the factors, challenges, coping mechanisms, and realizations of women who engaged in child marriage. Purposive sampling was used, involving eight (8) women from the selected Municipalities in the Special Geographic Area of the Bangsamoro Autonomous Region in Muslim Mindanao. The data were gathered through in-depth interviews guided by semi-structured questions and analyzed using ecological systems theory and coping theory. The study found that women's engagement in child marriage was mainly influenced by factors such as personal volition, cultural compulsion, social adaptation, and poverty dynamics. Furthermore, the results revealed that women encountered various challenges, such as psychosocial strain, economic strain, and learning barriers. To address these, they employed coping strategies including spiritual coping, personal resilience, and familial support. The findings of the study underscore the need for improved, inclusive policies, programs, and services to strengthen child welfare.

Keywords*: Child Marriage, Muslim Women, SGA BARMM, Phenomenological Study.*

Hospitality 2050: How Innovation and Sustainability are Redefining the Guest Experience

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Abstract

The hospitality industry stands at the crossroads of transformation, driven by rapid technological advancements, evolving consumer expectations, and urgent sustainability imperatives. Looking toward 2050, innovation will no longer be an option but a necessity in redefining how guest experiences are designed, delivered, and remembered. This keynote explores the convergence of emerging technologies such as artificial intelligence, robotics, immersive environments, and data-driven personalization with the timeless principles of hospitality rooted in human interaction and cultural connection. The session highlights how hospitality organizations are moving beyond traditional service models to embrace smart technologies, digital twins, and sustainable operational practices that not only enhance efficiency but also foster deeper, more meaningful engagement with guests. It critically examines the balance between automation and authenticity, addressing questions of trust, ethics, inclusivity, and the preservation of cultural values in a tech-driven future. Drawing on global case studies and scenarios, the keynote offers a forward-looking vision of the guest journey in 2050—one that is hyper-personalized, environmentally conscious, and increasingly borderless through the integration of virtual and hybrid experiences. Ultimately, this presentation argues that the future of hospitality depends not on technology alone, but on the sector's ability to harness innovation responsibly to create experiences that are sustainable, human-centered, and transformative for both guests and host communities.

***Keywords**: Hospitality Innovation, Smart Technologies, Guest Experience, Sustainable Hospitality, Digital Transformation, Future of Hospitality*

Evaluating the Willingness to Pay for the Adoption of Green Technologies for a Sustainable Airbnb Services in the Shared Economy: A Case of Southern Province in Sri Lanka.

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Abstract

The use of green technologies by Airbnb hosts in Sri Lanka has been examined in this study, with an emphasis on the creation and application of shared economy sustainability models. The study intends to evaluate how incorporating ecologically friendly practices can improve economic effectiveness, environmental impact, and visitor willingness to pay in Sri Lankan Airbnb lodgings. This study employs a Choice Experiments to explore guest's Willingness to Pay (WTP) for selected sustainable Green Technologies. Both the means-end theory and the social identity theory are supported by this professed willingness. The study uses four levels, exchanging houses and rooms under the contract basis for 1-2 days, Introduction of Airbnb concept with a digital app, introduction of green technologies and introduction of digital model with advanced, cost-effective green technology packages for WTP respectively. Based on a poll of 150 hotel users, the results revealed that, the respondents would prefer to pay 10000 LKR for the second level, 12 000 LKR for the third level and 15000 LKR for the fourth level for the benefits that they are receiving through adopting to the green technologies in the Airbnb service. Moreover, the results discovered that visitors staying in luxury and mid-range hotels are more prepared to pay more for Airbnb's green practices than guests staying in budget hotels. Furthermore, the study explores how sustainable practices impact client satisfaction, particularly with relation to guests' willingness to pay more for eco-friendly lodging and how these practices influence their reservation decisions. Through identifying and evaluating important green technologies, such as waste management systems, energy-efficient appliances, solar energy systems, and water conservation techniques, this study investigated the perceived advantages, difficulties, and obstacles to their adoption by hosts in the local environment. In order to promote a more sustainable tourism industry, improve the overall visitor experience, and aid in environmental preservation, the findings provide valuable insights for Airbnb hosts, legislators, and the platform itself.

Keywords: *Airbnb, Green Technologies, Sustainable Tourism, Willingness to Pay, Choice Experiment, Sri Lanka*

Engagement of Stakeholders in the Implementation of Occupational Safety and Health Programs in Micro-Business Enterprises

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Abstract

Occupational Safety and Health programs are essential to safeguarding worker well-being; however, their implementation within micro-business enterprises is often impeded by structural and operational constraints. This research explores how stakeholder collaboration contributes to overcoming systemic challenges and fostering more resilient and safer workplace environments in micro-business contexts. It critically evaluates the extent to which collaborative stakeholder engagement influences the design, implementation, and operational efficacy of occupational safety and health programs within micro-business enterprises. The research identifies gaps in governance, limited awareness, and fragmented coordination as critical barriers and proposes targeted interventions to mitigate these issues. Utilizing a mixed-methods design, the study integrates document analysis and key informant interviews to ensure methodological triangulation. A stakeholder analysis was conducted to map the roles, interests, and interrelationships of key actors, shedding light on the institutional dynamics influencing occupational safety and health program implementation. Findings highlight persistent gaps in awareness of occupational safety and health requirements among internal stakeholders, specifically employees and employers, alongside an unclear delineation of organizational roles and responsibilities, and limited capacity for regulatory enforcement. The study recommends fostering structured collaboration between internal and external stakeholders to reinforce program coherence and accountability. It further emphasizes the importance of institutionalizing participatory mechanisms that support inclusive decision-making, thereby improving safety outcomes and promoting enduring organizational resilience. In doing so, the research contributes to the development of responsive and doable occupational safety and health frameworks attuned to the specific needs of micro-business enterprises.

Keywords*: Occupational safety and health, micro-business enterprises, stakeholder engagement, workplace resilience, collaborative governance*

Growing Africa-Asia Business & Entrepreneurship Ecosystems in Forest, Beekeeping, and Nutrition & Medicine through Kijiji cha Nyuki, Singida – Tanzania.

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Abstract

Africa and Asia share deep ecological and cultural linkages that can be harnessed to strengthen business and entrepreneurship ecosystems in forestry, beekeeping, nutrition, and traditional medicine. This paper explores how Kijiji Cha Nyuki – Singida in Tanzania is positioning itself as a hub for Africa–Asia collaboration, leveraging innovative beekeeping technologies such as the Singida Techno-hive, sustainable forest management, and research-based value addition to bee products. The initiative integrates forest conservation, apiculture, food security, and medicinal knowledge systems to create an ecosystem that supports employment generation, climate resilience, and cross-continental trade. Using practical training, partnerships with universities, and industrial-scale production, the project aims to produce 1.2 million hives, 40,000 tons of honey, and over 6,000 jobs, while enhancing nutrition and advancing natural medicine. The study provides insights into how localized community-driven enterprises can grow into international business ecosystems, linking Africa and Asia through sustainable natural resource utilization.

Keywords*: Africa-Asia trade, Beekeeping, Forest entrepreneurship, Kijiji Cha Nyuki, Nutrition, Traditional medicine.*

Development of "JOB Labor Market Card Game", an Instructional Tool in Labor Economics Course

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Abstract

Traditional pedagogy in economics education often struggles with the abstract and quantitative nature of the subject that can lead to diminished student engagement and comprehension. This study addresses that pedagogical challenge by developing and evaluating the "JOB Labor Market Card Game," an innovative instructional tool for labor economics course. Employing a mixed-method research design, the researchers assessed the game's effect on student learning and engagement. The research population consisted of 47 undergraduate economics students at Pangasinan State University. Descriptive statistics and Chi-square tests were used for quantitative analysis to measure the game's acceptability across three dimensions: attention, relevance, and satisfaction. Thematic analysis was employed for qualitative data. The results reveal a very high level of acceptability for the game, with mean scores consistently above 4.35 on a 5-point Likert scale. Students reported improvements in motivation, active participation, and comprehension of complex labor market concepts. The game was perceived as a valuable supplement to traditional teaching methods that can enhance analytical, social, and decision-making skills. Qualitative data reinforced these findings which suggest that the game has the ability to make learning more interactive and engaging. The study concludes that the integration of educational games such as the developed "JOB" Labor Maret Card Game is a valuable and effective supplement to conventional teaching methods in economics and other complex disciplines in higher education,

Keywords: *Labor Economics, Game-Based Learning, Instructional Tool, Economic Education, Student Engagement, Labor Market Card Game*

Circularity: An Emblematic Reflection on Broader Sustainability Transitions

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Abstract

Circularity is no longer just an environmental ideal; it is rapidly becoming a decisive factor in shaping the future value and resilience. As the built environment faces increasing pressures from resource scarcity to climate change, circular economy (CE) principles can be the pathway to better sustained developments. This paper explores how decisions about long-term value creation in the built environment shape CE principles integration. A qualitative approach was used, combining a review of recent literature with selected case examples identified through databases such as Scopus.

The study argues that circularity shall not be merely restricted to technical innovation but also a signal of deeper social, economic, and institutional change within the sector. Findings show that integrating circular criteria into building practices can enhance the overall resilience and sustainability of the built environment. The paper concludes by identifying key opportunities and challenges for aligning the industry with broader sustainability goals and offers practical insights for practitioners, policymakers, and researchers aiming to embed circular principles into the built environment.

***Keywords**: Circular economy, Sustainability transitions, Built environment*

MSMEs and Rural Economic Transformation: Cross-Country Evidence from Indonesia and Malaysia

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Abstract

This study examines the role of micro, small, and medium enterprises (MSMEs) in rural economic transformation across Indonesia and Malaysia. Using secondary data from global and national statistical agencies (2010–2025) and applying multiple regression analysis, we test the contribution of MSMEs to rural income growth, employment, and poverty reduction. The findings confirm that MSMEs are significant drivers of rural transformation, but the magnitude of their effects differs across the two countries. MSME density and share of rural GDP are consistently associated with higher rural incomes and employment and with lower poverty headcounts. Comparative analysis shows stronger poverty reduction effects in Malaysia and stronger employment-generation effects in Indonesia. The study extends entrepreneurship and endogenous growth theories in rural contexts and provides practical insights for ASEAN policymakers to strengthen MSME-driven rural development.

Keywords*: MSMEs, rural economic transformation, Indonesia, Malaysia, quantitative analysis, cross-country comparison.*

Rfid Technology in Ruminant Management

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Abstract

The integration of Radio Frequency Identification (RFID) technology in livestock management has brought significant advancements in how ruminants are tracked, monitored, and cared for. This research explores the application of RFID technology in the management of ruminant animals—specifically within the context of Bulacan Agricultural State College (BASC) and its surrounding agricultural communities. By combining RFID with data analytics, the study aims to enhance efficiency, traceability, and animal welfare in ruminant production systems. Through a comprehensive review of existing technologies and related literature, the research identifies how RFID can provide practical, cost-effective solutions to help farmers advanced their technologies and to have data-driven approaches to monitor, manage, and optimize livestock production in real time. It aims to improve animal health monitoring, enhanced animal welfare through continuous monitoring and sustainability while reducing costs and environmental impact. It also emphasizes the broader impact on BASC's educational programs, supporting curriculum development in animal science and promoting student engagement in innovative agricultural technologies. Furthermore, the study encourages collaboration between the institution and local livestock stakeholders by offering research-based solutions that are both sustainable and scalable. Ultimately, this research contributes to the modernization of livestock practices in the region and serves as a foundation for future initiatives in Precision Livestock Farming.

Keywords: *Radio frequency Identification, Ruminant Monitoring, Data Analytics, Mobile application, Agricultural Innovation,Web application*

Innovation Challenges for SMEs in the Blue Economy: Insights from the Portuguese Maritime Sector

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Abstract

This article explores the innovation obstacles encountered by small and medium-sized enterprises (SMEs) operating within Portugal's Blue Economy (BE). Through a narrative literature review, the study synthesises multidisciplinary insights to develop a five-dimensional analytical framework encompassing technological, organisational, territorial/social, institutional/policy, and financial/economic aspects of innovation. The framework bridges mainstream innovation models with the specific structural and systemic constraints affecting maritime SMEs in peripheral and ecologically sensitive contexts. The research adds to the literature on sustainability-oriented and place-based innovation by emphasising the interdependence of innovation dimensions and exposing critical gaps in policy design, institutional support, and access to finance. Unlike linear or firm-centric models, this framework takes into account the role of socio-ecological factors, governance fragmentation, and regional disparities in shaping innovation trajectories. Methodologically, the review integrates peer-reviewed research, policy documents, and grey literature, justifying the narrative approach in light of conceptual fragmentation and the heterogeneous nature source types. A Delphi study is being prepared to empirically validate the framework and generate consensus among experts on the priorities and enabling conditions for SME-led innovation in the Portuguese BE. Findings are relevant for scholars, policymakers, and practitioners endeavouring to comprehend and support innovation in complex coastal economies.

Keywords: *blue economy, SMEs, innovation models, sustainability.*

Sustainable Blockchain-Based Loyalty Platform for Urban Areas with Low Population Density

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Abstract

Global sustainable development for 2030 and the pursuit of mobilizing efforts around a set of common goals and targets are priorities of the 2030 Agenda, adopted by all United Nations Member States in 2015. In this context, it is fundamental to develop technological solutions to address physical and scientific limitations that affect sustainable economic growth, especially in urban areas with low population density. The loyalty platform (compronofundao.pt) is presented as a potential solution to support local industry decision-making in defining strategies for developing new consumer-oriented sustainable products. This contribution reinforces Sustainable Development Goal 9: "Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation". The platform consists of a transparent and secure environment, built on emerging blockchain technology and enabled through a mobile application (APP). It is based on the national Rewards Hub platform, specifically designed for the local stakeholder context. It is configured to be a simple and innovative solution that enhances local operations, providing stakeholders with a multi-partner approach, connected through a system of points and discounts. The platform enables the management of business decisions, as well as the export of data in .CSV format for predictive analyses of consumer behavior. It also offers the possibility of managing promotional campaigns to encourage conscious consumption and reduce product waste. The system is organized into complementary interfaces tailored to each stakeholder's perspective, enabling real-time data collection and analysis to inform future sustainable decision-making. This loyalty platform is part of a case study on fostering a sustainable economy in the Fundão region, Portugal. Supported by Portugal's Recovery and Resilience Program under the NextGen EU initiative, it provides a framework for developing detailed assessments that help balance present needs while safeguarding the well-being of future generations.

Keywords*: Blockchain, Digital Platform, Loyalty, Sustainable Development Goals*

Navigating the Shadow Market: Innovative Strategies for Regulating Unregistered Short-Term Rental Accommodation (STRA)

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Abstract

This study explores innovative regulatory strategies for managing unregistered short-term rental accommodation (STRA) operations in Malaysia. Through face-to-face interviews with 11 key stakeholders, including government officials and industry representatives across various agencies, the study examines the development of comprehensive frameworks to address the challenges posed by unregistered STRA activities. The findings reveal that multiple authorities participate in STRA management, leading to jurisdictional conflicts and enforcement challenges. In response, PLANMalaysia has initiated the development of comprehensive STRA guidelines through the General Planning Principles and the Selangor State Tourism Purification Program. These frameworks categorize STRA operations into residential and commercial zones, establishing specific operational requirements including night cap controls, mandatory business registration, and approval requirements from resident associations or management bodies. Critical operational aspects include safety protocols, nuisance prevention systems, and enforcement mechanisms, with penalties for non-compliance ranging from fines to license revocation. The findings demonstrate that effective regulation requires a balanced approach between promoting tourism growth and protecting community interests. This study contributes to the understanding of STRA governance in developing economies and provides essential guidance for policymakers seeking equilibrium between tourism industry development, residential wellbeing, and urban planning objectives.

Keywords: *Short-term Rental Accommodation, Homestay, Innovation Strategies, Sharing Economy, Economic Impacts*

Memorials and Mood: The Impact of Dark Tourism on Visitors' Emotional Experiences

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Abstract

This study explores how memorials, as key sites of dark tourism, influence visitors' emotional experiences and reflections. A total of 100 respondents participated in a survey examining emotional responses, design perceptions, and post-visit reflections. Results reveal that most visitors experience strong emotions such as sadness, empathy, and reverence when visiting memorials. The design, layout, and atmosphere of these spaces significantly affect how visitors feel, while personal stories and historical narratives deepen emotional engagement. Respondents view memorials primarily as reflective spaces that promote empathy and personal connection rather than purely educational sites. Emotional experiences are found to vary based on individual background, prior knowledge, and whether visitors came alone or with others. Although memorial visits inspire reflection and discussion, the emotional impact tends to fade over time. Overall, the study underscores that memorials serve as powerful emotional and cultural spaces, fostering remembrance, awareness, and empathy while shaping how people engage with history and human tragedy.

Keywords*: memorials, dark tourism, emotional experiences, visitor engagement, cultural memory*

Incorporation of Waste Eggshell and High-Density Polyethylene in Asphalt Concrete for Improved Durability

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Abstract

This study evaluates the viability of utilizing calcined eggshell powder and recycled high-density polyethylene (HDPE) as eco-friendly modifiers for asphalt concrete. The objective was to assess the chemical interactions and performance enhancements resulting from integrating these waste materials, aiming for sustainable heavy-traffic pavements.

Washed, dried, and pulverized waste eggshells were calcined at about 900°C for two hours, yielding a 67% CaO content, and passed through a 0.075 mm (#200) sieve. Recycled HDPE was ground to pass a #30 sieve and used to modify 60/70 bitumen. Using "Grading D" aggregates with 3% calcined eggshell filler, fifteen batches with bitumen contents ranging from 5.0% to 7.0% were compacted following the ASTM D 1559-89 Marshall Design method.

Performance was evaluated against Bureau of Research Standards (Department of Public Works and Highways) for heavy-loading traffic. Results indicated that the modified asphalt concrete performed best at 6.0% asphalt content. However, air voids were elevated due to CO_2 gas evolution caused by the reaction of bitumen carboxylic acids with residual calcium carbonate from incomplete calcination. Chemically, FTIR analysis revealed that hydroxyl groups were stabilized, forming insoluble salts. Furthermore, XRD identified orthorhombic $Ca_5SiO_{17}{\cdot}5H_2O$ and trigonal $Ca_6Si_2O_7(OH)_6$ tobermorite polymorphs. These findings lead to the conclusion that calcined eggshells react effectively with aggregate silanol groups.

The significance of this research lies in utilizing waste to engineer chemically reinforced infrastructure. While calcination efficiency requires optimization to control air voids, the formation of complex calcium silicate hydrates confirms that HDPE and eggshell modifiers create a stable binder-aggregate matrix, supporting the circular economy in road construction.

Keywords*: asphalt concrete, calcium oxide, high-density polyethylene, eggshell, Marshall Mix Design*

Recent Advances in Fly Ash/Fe3O4/TiO2 Composites for Dye Adsorption: A Comprehensive Review

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Abstract

The objective of this comprehensive review is to summarize and critically evaluate recent advances in the development of fly ash/Fe3O4/TiO2 composites, emphasizing their potential as low-cost, magnetically recoverable, and sustainable materials for dye adsorption in wastewater treatment. To achieve this aim, recent peer-reviewed studies were systematically reviewed to compare synthesis strategies, structural characteristics, and adsorption performance. Several fabrication approaches—including sol–gel deposition, co-precipitation, hydrothermal coating, and surface modification—were examined to understand their influence on Fe3O4 nanoparticle distribution, TiO2 shell formation, and the incorporation of fly ash as an active aluminosilicate matrix. Reported characterization results, such as XRD for crystallinity, FTIR for functional groups, TEM for morphology, BET for surface area, VSM for magnetic behavior, and UV–Vis spectroscopy for adsorption evaluation, were synthesized to identify correlations between physicochemical features and dye removal efficiency. The reviewed findings consistently indicate that combining fly ash, Fe3O4, and TiO2 produces synergistic effects that enhance adsorption capacity, magnetic separability, and surface reactivity, especially toward anionic dyes like methyl orange and congo red. The composites also exhibit strong pH-dependent behavior, with acidic conditions generally improving dye uptake due to enhanced electrostatic attraction and surface hydroxyl activity, while factors such as contact time, dye structure, and TiO2 crystallinity further modulate performance. Despite significant progress, challenges remain, including non-uniform TiO2 coating, diminished magnetic stability after repeated regeneration cycles, and limited large-scale synthesis protocols capable of maintaining consistent material quality. The significance of this review lies in consolidating current knowledge, identifying key research gaps, and outlining strategic recommendations to advance future development. Opportunities highlighted include greener synthesis routes, improved interfacial engineering, integration with carbonaceous supports, and application in continuous-flow systems. Overall, this review provides essential guidance for optimizing fly ash/Fe3O4/TiO2 composites as practical, affordable, and sustainable materials for dye-contaminated wastewater treatment.

Keywords: *Fly ash/Fe3O4 /TiO2 composites; magnetic nanocomposites; dye adsorption; anionic dyes; wastewater treatment.*

An Optical Laser Link for Secure Data Transmission Using Arduino and Cybersecurity Integration

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Abstract

During the recent rise of wireless communication systems there has been an increase in demand for a secure, interreference free and cost-effective alternative to the existing radio frequency systems. Traditional technologies Wi-Fi and Bluetooth face issues like high power demand, signal interference and they are vulnerable to security breaches. Such problems make them less ideal for short range applications. The following article sketches the design and implementation of a secure laser based optical communication system using Arduino in order to overcome these constraints.

Keywords: *Laser Communication, Arduino Nano, Optical Wireless, Cybersecurity, Encryption, Secure Data Transmission.*

Enhancing Interactive Communication in Algerian EFL Classrooms Through AI-Powered Pronunciation Feedback Tools

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Abstract

In Algerian EFL classrooms, students often face limited speaking confidence and challenges in interactive communication. Conventional teaching methods may reduce active participation and make peer-to-peer exchanges stressful. This study aimed to examine whether AI-powered pronunciation feedback tools can enhance students' interactive oral communication and classroom engagement. Over a two-week intervention, students participated in structured speaking activities using AI-driven software that provided real-time feedback on pronunciation, intonation, and turn-taking. A control group followed standard instruction without AI support. Data were collected through pre- and post-intervention speaking assessments, motivation surveys, and systematic classroom observations. The mixed-methods design offered both quantitative evidence and qualitative insights into learners' experiences. Findings revealed significant improvement in students' ability to engage in interactive dialogues, enhanced pronunciation accuracy, and increased confidence in oral participation. Learners also reported greater willingness to communicate in English outside the classroom and more dynamic collaboration during paired and group activities. Recommendations include integrating AI pronunciation feedback tools into EFL curricula to foster interactive speaking, sustain motivation, and support ongoing skill development. Teachers should complement AI activities with reflective discussions and targeted feedback. Policymakers are encouraged to provide professional development and resources to facilitate effective AI integration in language education.

Keywords: *Algeria, AI, EFL, Interactive Communication, Pronunciation, Speaking Skills*

The Role of AI Driven Feedback Tools in Enhancing Writing Proficiency in Algerian EFL Students

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Abstract

In Algerian EFL classrooms, many students face challenges in writing tasks. These difficulties can affect overall language proficiency. This study aimed to investigate the effectiveness of AI-driven feedback tools in improving writing skills using a quantitative approach. Sixty students participated in a one-month intervention. The experimental group completed structured writing activities using AI software. The software provided real-time feedback on grammar, vocabulary, coherence, and organization. Meanwhile, the control group continued with standard instruction. Pre- and post-tests measured writing accuracy, fluency, and structural complexity. Statistical analysis revealed that students in the AI-supported group significantly outperformed the control group across all metrics. Notable gains were observed in grammatical accuracy and essay organization. These results indicate that AI-driven feedback tools can effectively enhance writing performance in EFL contexts. The study recommends incorporating AI-based writing exercises into curricula to promote consistent practice. It also helps improve learner confidence and supports measurable progress. Therefore, educators should complement AI activities with structured assessments and personalized feedback.

Keywords: *AI; Algeria; EFL; Feedback; Writing*

Experiences and Transformative Role of Education Among Persons Deprived of Liberty

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Abstract

This qualitative study investigated the experiences and transformational effects of education on Persons Deprived of Liberty at the Bureau of Jail and Management and Penology in Iligan City. The study utilized an exploratory research technique to investigate the impact of education on inmates' self-perceptions, objectives, and rehabilitation, along with the role of jail guards in facilitating learning inside the correctional setting. We got our data by doing semi-structured interviews with three PDLs and two correctional officers. The researchers then used Braun and Clarke's (2006) thematic analysis approach to look at the data. The results showed that education is a strong force for personal change, helping PDLs regain their self-esteem, hope, and a new sense of purpose of living. Learning changed their morals and gave them power, which helped them get ready to rejoin society successfully. Also, jail officers were particularly significant as instructors and encouragers, making the learning space safe and inviting. The study finds that education in prisons is more than just learning; it is a process of rehabilitation and change that helps people grow and change society.

Keywords: *Persons Deprived of Liberty, Jail Officers, Correctional Education, Rehabilitation, Transformation*

Morphological Awareness Among Alternative Learning System (Als) Learners: Toward Inclusive and Gender-Responsive Literacy Practices

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Abstract

This study examines the role of morphological awareness in literacy development amongAlternative Learning System (ALS) learners, emphasizing its influence on vocabulary, readingcomprehension, and spelling. The research aimed to determine learners' levels of morphological awareness and explore gender-specific patterns to inform targeted instructional interventions. Thestudy involved learners enrolled in the Alternative Learning System (ALS) learners in Mabinay, Negros Oriental, Philippines. Findings revealed that most learners demonstrated only basicmorphological awareness, with significant challenges in vocabulary acquisition and readingcomprehension. Spelling skills were relatively stronger, yet overall literacy progress was constrained by gaps in morphological understanding. Gender-based differences were observed: male learners performed better in reading comprehension, while female learners excelledinspelling. These results highlight the need for gender-sensitive instructional materials and explicit integration of morphological awareness in ALS curricula to promote literacy equity and learner empowerment. The study contributes to the achievement of SDG 4 (Quality Education), SDG5(Gender Equality), and SDG 10 (Reduced Inequalities) by advancing inclusive and equitableliteracy practices.

Keywords: *Alternative Learning System, Gender-sensitive instruction, Morphological awareness, Reading comprehension, Spelling, Vocabulary*

Addressing Academic, Behavioral, and Psychosocial Challenges of College Students: An Evaluation of Guidance and Counseling Interventions at Saint Joseph's College of Baggao

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Abstract

This study examines the prevalent academic, behavioral, and psychosocial challenges faced by students and evaluates the effectiveness of guidance and counseling interventions implemented by the Guidance Office of Saint Joseph's College of Baggao. Using a mixed-methods design, the research draws on survey responses, counseling reports, and neuro-psychological evaluations to identify the most pressing student concerns, including academic stress, exam anxiety, financial struggles, low self-esteem, and time management difficulties. The findings reveal that individualized counseling, group therapy, multiple intelligence assessments, and structured psycho-therapeutic sessions significantly contributed to students' emotional stability, coping strategies, and academic engagement. Moreover, students reported improved resilience, self-awareness, and positive outlook after participating in these interventions. The study concludes that a holistic and proactive guidance program is essential in fostering student well-being, retention, and academic success. Recommendations are provided to strengthen future mental health initiatives and institutional support mechanisms.

***Keywords**: Academic Stress, Psychosocial Challenges, Guidance and Counseling, Neuro-Psychological Evaluation, Student Well-being*

Nematicidal Effect of Botanical Extracts of Moringa for the Management of Root-knot Nematode of Chilli

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Abstract

Management of root-knot nematodes is quit important to reduce yield losses in chilli (*Capsicum annuum*). Due to environmental concern; management tactics should be eco-friendly. This study aimed to identify the potential nematicidal effect of *M. oleifera* to control the *M. incognita* infestation in *C. annuum* at the field level. Varying concentrations of leaf extract per plant (1 % (T1), 10 % (T2), 25 % (T3), 50 % (T4), and 100% (T5)) were teste. The experiment arranged in a randomized complete block design (RCBD) (seven treatments with three replicates and each replicate consist of 42 plants). Negative control (T7) and the positive control (T6) were conventional chilli cultivation without treatments and treatment with commercial nematicide; *Velum prime* respectively. The treatments were done as soil application at the time of transplanting. Plant height, number of wilted plants, number of root-knot, and individual crop yields of *C. annuum* were investigated. Application of *M. oleifera* leaf extract in all tested concentrations were showed a significant difference in all tested parameters compared to control (One way Anova, $P<0.05$). Plant height in 100 % of *M. oleifera* leaf extract treatments significantly different ($p<0.05$) (70.99 cm) at 10 WAT compared to control plots (56.15 cm). Plots treated with 100 % and 50 % of *M. oleifera* leaf extract had significantly lower mean the number of wilted plants (4 and 5.67 respectively) and the control had a higher mean number of wilted plants (27). Also, the 100 % concentration of *M. oleifera* leaf extract had a significant effect on the population of *M. incognita* with the lowest mean number of root-knots (8.6) and ranked one while the control plots recorded with a higher mean number of root-knots (95.47). The yield also shows significantly higher mean values with a treatment concentration of 100 % (61.5 t/ha) and the control had the lowest yield of 22.57 t/ha. Therefore, among the *Moringa* leaf extract applied; 100 % of 50 ml of leaf extract per plant had significantly control the root-knot nematode infection and significantly improved the growth and yield of *C. annuum* plant.

***Keywords**: Moringa oleifera leaf extract, Root-knot nematodes, Meloidogyne incognita, Capsicum annuum*

Sustainability Roadblocks: Effect of Implementation Challenges on the Adoption of Circular Management Practices in Selected Manufacturing Firms in the Philippines

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Abstract

This study investigates the extent to which problems in implementing circular management practices relate to circular management adoption by manufacturing firms in the Philippines. The argument follows that circular management associated with sustainability, waste reduction, and resource efficiency is crucial for sustaining long-term business performance and decreasing the environmental footprint of businesses. Yet, the imperative and essential implementations of these practices differ among firms owing to various hindrances, which may lead to a weak adoption of sustainable practices.

Quantitative research was conducted whereby data were sourced from manufacturing firms across different industries in the Philippines. The results indicated a significant negative relationship between the problems and the adoption of circular management practices, meaning, the higher the number of problems encountered regarding high initial investment cost, lack of technological know-how, limited government support, and resistance to change- the less ability and willingness to adopt circular strategies into their operations. These finding advocates that these barriers need to be surfaced and address to enhance the adoption of circular management practices among manufacturing companies.

Moreover, the result also indicates a stronger need of policy supports, financial incentives, and capacity development initiatives for encouraging firms to overcome those challenges. Thus, this would allow manufacturing enterprises to make an effective transition toward circular management, implying sustainability in itself and market competitiveness. Future studies may find out the challenges faced by industries and government regulations in further boosting the adoption of circular economy practices in the Philippine manufacturing sector.

Keywords: *Circular management practices, adoption, implementation challenges, manufacturing firms, sustainability, Philippines.*

Social Media as a Marketing Tool: Perceptions of Entrepreneurship Students in Cavite State University-Imus Campus

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Abstract

Social media has revolutionized the marketing sector, providing companies with inexpensive means of advertising brands, interacting with consumers, and increasing sales. As future entrepreneurs, students taking an entrepreneurship degree have to learn social media marketing in depth. What they perceive about its usefulness, difficulties, and uses is unknown. This research will explore the attitudes of Cavite State University–Imus Campus students studying entrepreneurship towards social media as a marketing tool.

Descriptive-correlational design was used in the study with the assistance of quantitative and inferential statistical analysis. A survey questionnaire based on example was given to entrepreneurship students so that their demographic profile, popular social sites visited by them, appropriateness of social media advertising through audience engagement, brand awareness and popularity, conversion and influencing sales, and cost-appropriateness and affordability, along with their pros and cons, could be measured. Also, the study examined the students' confidence to apply social media marketing practices and the correlation between the application of social media and confidence. Also, the study examined whether perceptions of the efficacy of social media differed significantly as a function of demographic profile.

Studies showed that TikTok, Facebook, and Instagram were the most utilized marketing tools. Social media was found to be highly effective in increasing engagement of the audience and brand visibility but had mixed views for effectiveness in the sales conversion as well as value for money. Issues like algorithm updates, challenges in content creation, as well as online competition were observed. Statistical tests indicated that students' engagement with social media was strongly associated with their self-efficacy in using marketing strategies. Also, statistically significant differences in perceived usefulness were there based on certain demographic variables.

From the research findings, the study provides recommendations for entrepreneurship education improvement by incorporating experiential social media marketing training, workshops, and online business simulations. The study's findings can be used in preparing future entrepreneurs with the skills to tap into the full capacity of social media for business development.

Keywords: *Social Media Marketing, Audience Engagement, Brand Awareness, Sales Conversion, Digital Marketing*

Sustainable Development Goals in India – In Perspective of Gender Inequality

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Abstract

The gender equality means when the people of all male and female genders have equal rights, responsibilities and opportunities. The sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. A United Nations Organization (UNO)'s 17 Sustainable Development Goals (SDGs) were adopted by all its member states in 2015 with 169 targets to reach by 2030. India has adapted these SDGs. Among the 17 goals, the SDG goal 5 is related to 'Gender equality: Achieve gender equality and empower all women and girls. There are 9 targets there in this goal. The coronavirus has exacerbated existing inequalities for women and girls across every sphere from health and economy to security and social protection etc. This article has focused for the assessment of the UNO's SDG 5 at the international and separately by another data at an Indian level in order to know to what extent gender equality for females had been achieved. The gender equality for female's sustainable development on the whole had been slightly progressing under the SDG 5 at international level. The term 'gender' was embraced because it is inclusive of both sexes and highlights how the two sexes exist relationally. The Gender is a constitutive element of social relationships based on perceived differences between the sexes and it is a primary way of signifying relationships of power. Gender and gender relations are never neutral, but embedded in and shaped by such larger systems of power as culture, economics and politics. In essence, the Indian government uses a multi-pronged approach, blending legislative action, social awareness campaigns, and targeted financial/health schemes to achieve SDG 5, focusing heavily on empowering the girl child and women economically and socially. The Sustainable Development Goals (SDGs) are 17 interconnected global goals set by the United Nations in 2015 as a universal call to action to end poverty, protect the planet, and ensure peace and prosperity for all by 2030, balancing social, economic, and environmental needs through integrated strategies for a better future. The key principles include: - Integration: Actions in one area impact others, requiring holistic approaches, Universality: A call to action for all countries, developed and developing, Inclusivity: Focus on leaving no one behind, especially the most vulnerable and Balance: Integrating economic, social, and environmental dimensions of development. These goals provide a shared blueprint for a sustainable future, guiding national policies, business strategies, and individual actions worldwide. (442 words)

Keywords: *Integration, Sustainability, Gender, Inequality, Universality, Development,*

The Role of Public Sector Innovations in the Competitiveness of Local Government: Evidence in the Province of Cavite, Philippines

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Abstract

The province of Cavite has been consistently in the top 5 most competitive provinces in the Philippines since 2017. It comprises 8 component cities, eight first-class municipalities, and seven municipalities under the 3rd-5th class LGU. This paper attempted to explore the factors of local competitiveness of the twenty-three local government units in the province of Cavite using the five competitiveness indicators developed by the National Competitiveness Council. The paper utilized the 6-year (2019-2024) overall competitiveness scores and the annual scores per pillar of the LGUs released by the Department of Trade and Industry. The paper applied Analysis of Variance, with post-hoc comparisons, to compare the annual competitiveness of the LGUs. In addition, correlation and regression analyses were performed to estimate the relationship between the overall score and the score per indicator/pillar. Findings show significant differences in the performance of the LGUs concerning government efficiency, infrastructure, and public sector innovation. The correlation between the overall score and the five indicators was significant. The coefficients ranged from 0.452-0.855 with p-values lower than 5%. The infrastructure and innovation pillars were strongly correlated to the overall competitiveness, with coefficients of 0.855 and 0.782, respectively. Innovation was significantly correlated with government efficiency, infrastructure, and resiliency pillars. The final regression model revealed that the four competitiveness pillars- innovation, economic dynamism, infrastructure, and resiliency were significantly related to the overall competitiveness of LGUs in the province of Cavite. The findings underscore the need for sustaining innovative actions among LGUs to enhance overall competitiveness.

Keywords: *competitiveness, innovation, local government, Cavite*

Dispositional Resilience, Cognitive Appraisal, and Academic Isolation of Adolescents During Online Classes Amidst Covid-19 Pandemic

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Abstract

This research investigated the relationship between dispositional resilience, cognitive appraisal, and academic isolation of adolescent college students during online classes amidst the COVID-19 pandemic, and the difference among variables according to demographic profile. The study tested if dispositional resilience and cognitive appraisal significantly predict academic isolation and proposed a psychological intervention program that can alleviate academic isolation. Sequential explanatory research design was employed, consolidating the data from 828 screened highly lonely first year students. Dispositional Resilience Scale, Primary and Secondary Cognitive Appraisal Scale, Academic Isolation Scale, and a semi-structured interview guide were used. Data were analyzed using non-parametric tests, and thematic analysis. Results revealed the evidence of commitment and challenge dispositional resilience, high level of cognitive appraisal and moderate level of academic isolation among students, which differed according to some demographic characteristics. Only challenge dispositional resilience, and challenge and coping cognitive appraisal can predict academic isolation. Emergence of themes self-determination for dispositional resilience, coping mechanism for cognitive appraisal, and need for social connectedness for academic isolation became evident. A psychological intervention program, adopting the Dialectic Behavioral Model by Marsha Linehan, was developed to strengthen dispositional resilience and cognitive appraisal of adolescent college students who are susceptible to academic isolation. Utilization of the program is recommended to prevent and alleviate academic isolation of students.

Keywords: *dispositional resilience, cognitive appraisal, academic isolation*

Development of Big Books using the Mother Tongue-based Multilingual Education (MTB-MLE) on Climate Change and Disaster Response

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Abstract

In 2012, the Department of Education in the Philippines implemented the use of Mother Tongue-Based Multilingual Education (MTB-MLE) in public schools, specifically in Grades 1, 2, and 3. Initially, 12 languages were used, with an additional seven languages introduced in 2013. Given the Philippines' vulnerability to natural disasters, it is crucial that children develop a strong understanding of disasters and disaster response. To address this need, the researcher developed "Big Books" designed to provide young children with an engaging and enjoyable learning experience about disasters. This study employed action research, using the Big Books as an intervention tool. The books facilitated easier communication and comprehension, enabling teachers to effectively explain disaster-related concepts to children. Consistent with previous studies, the use of Mother Tongue helped foster a sense of pride in both teachers and learners regarding their heritage, language, and culture. The Big Books were written in Ilocano and told the story of a boy named Dino, who survived various disasters, including floods, fire, volcanic eruptions, storm surges, tornadoes, typhoons, earthquakes, and landslides. In the story, Dino and his family navigate and survive these disasters through proper preparation. Observations during Big Book reading sessions revealed that children were highly engaged and delighted. They actively participated, expressing amazement when the characters in the book popped up. Based on these observations, it can be concluded that the Big Books were highly accepted by the children, particularly in the Kankanaey tribe. The reading sessions created lasting, enjoyable memories for the children, and there was a strong desire for the Big Books to be translated into other languages. Given the positive response from both children and teachers, it is recommended that more Big Books be developed, with careful consideration of their design and content to enhance the children's learning experience. Future recommendations include creating Big Books for other types of disasters, adding sound effects, registering for ISBN and copyright, translating the books into different languages, developing electronic versions, and conducting reading sessions for pre-elementary and primary school children. Further research is needed to assess the content validity and acceptability of the Big Books.

Keywords: *Kankanaey, effectively*

A Fuzzy Logic-Based Decision Support System for Academic Program Selection in Higher Education: Development and Evaluation

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Abstract

The selection of an appropriate academic program is a critical decision for students entering higher education, as it significantly influences their academic performance and career trajectory. This paper presents the development and evaluation of a fuzzy logic-based decision support system (DSS) designed to assist students in selecting optimal academic programs. The system integrates multiple data inputs, including standardized entrance exam scores and cumulative academic performance metrics, to generate personalized program recommendations. Using a Rapid Application Development (RAD) methodology, the system was designed with a modular architecture, featuring a fuzzy logic engine to handle uncertainty and imprecise data, and a web-based interface for user interaction. The system's performance was rigorously evaluated using ISO/IEC 25010 software quality standards, with results demonstrating high levels of functionality (mean score: 4.58), usability (mean score: 4.66), and reliability (mean score: 4.60). These results underscore the system's effectiveness in providing accurate, user-friendly, and reliable recommendations. The significance of this research lies in its potential to improve student decision-making, enhance academic advising processes, and reduce dropout rates by aligning students with programs that match their strengths and interests. Future work will focus on expanding the system's scope to include additional academic disciplines, integrating machine learning algorithms to enhance prediction accuracy, and conducting longitudinal studies to assess the system's long-term impact on student retention and academic success.

Keywords: *Decision support system, web-based management system, information systems.*

Correlating Job Satisfaction and Faculty Depth Analysis of Factors-Attrition: An In Affecting Instructor Retention at Colegio de Manaoag-San Juan de Letran

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Abstract

Faculty attrition is a complex phenomenon that can disrupt the continuity of educational services and compromise the icate institution's knowledge capital, impacting both institutional stability and educational quality. This study examines the intr relationship between job satisfaction and faculty attrition, focusing on various influencing factors such as professional development opportunities, recognition, workload management, administrative support, institutional policies, supervision , terpersonal relationships. Utilizing a quantitative research approach with a correlational design, data compensation, and in known organizational psychologist and-were collected through Standardized survey questionnaires by Paul E. Spector, a well researcher specializing in Job satisfaction, workplace behavior, and organizational health. One of his most notable The contributions is the Job Satisfaction Survey (JSS), a widely used tool to assess job satisfaction across various industries. distribute standardized questionnaires are d via online to faculty across basic education and college levels using google he form. The ANOVA revealed that there is a significant relationship between job satisfaction and faculty attrition, therefore t Value: 0.000006 is less than the-Crit: 3.95, while P-Value: 23.14 is greater than F-null hypothesis is rejected. Showing that F Alpha: 0.05. To support the findings from ANOVA, Pearson Coefficient indicates moderate negative relationship, indicating orrelation. The study 0.52 c-inverse relationship between variables; one increases, the other decreases with the the result of 3 years of experience–dominated faculty, with most holding Bachelor's Degrees and 1-highlights a younger, female . Satisfaction is high in areas like compensation, workload management, and institutional support, though limited career advancement and insufficient faculty development remain concerns. Key attrition factors include low compensation, lack of life balance. Addressing intrinsic and extrinsic factors through better-professional growth, heavy workload, and poor work salaries, professional growth, mentorship, and career paths is essential for retention. The correlation matrix shows varied relationships between variables, emphasizing the complexity of the issue. For future research about the applicable strategies that might help the reduce the faculty attrition for the institution.

Keywords: *Faculty Attrition, Job Satisfaction, Professional Development Opportunities, Recognition, Work Management*

Assessing the Effectiveness of Automated Dispensing Cabinets in Reducing Medication Errors among ICU Nurses in Saudi Hospitals: A Structural Equation Modeling Approach

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Abstract

Medication errors remain a persistent patient-safety challenge in intensive care units (ICUs), where high-acuity care, time pressure, and complex medication regimens increase the likelihood of prescribing, dispensing, administration, and documentation errors. Automated Dispensing Cabinets (ADCs) are increasingly adopted as a technological intervention to strengthen medication control, enhance traceability, and reduce error opportunities at the point of care. However, variation in outcomes across hospitals suggests that ADC impact is influenced by contextual and human factors rather than technology alone. This study aims to assess the effectiveness of ADCs in reducing medication errors among ICU nurses in Saudi hospitals and to test whether nurse training, workload, trust in technology, and protocol adherence/organizational safety culture mediate this relationship. A quantitative cross-sectional design will be used across two tertiary institutions in Taif, Saudi Arabia: King Faisal Medical Complex (ADC-implemented) and Taif Children's Hospital (non-ADC), enabling comparison across different dispensing environments. The target population is 250 ICU nurses, with an estimated minimum sample of 152 selected using stratified random sampling proportional to hospital size (approximately 91 from King Faisal Medical Complex and 61 from Taif Children's Hospital). Data will be collected using a structured Arabic questionnaire with four sections: demographic/professional data (10 items), ADC effectiveness (20 items), mediators (12 items), and medication errors (5 items), rated on a 5-point Likert scale. Analysis will be conducted using SPSS version 29 for preprocessing and AMOS for Structural Equation Modeling, including confirmatory factor analysis, model-fit evaluation, and bootstrapped mediation testing (5,000 samples). A pilot study (30 ICU nurses) will assess clarity and reliability prior to full deployment. Findings are expected to generate actionable evidence on how ADCs and modifiable mediators jointly shape medication safety in Saudi ICUs.

Keywords: Automated dispensing cabinets, intensive care units, medication errors, structural equation modeling.

Free Irrigation Service Act: The Case of Communal Irrigation System (CISs) Irrigators's Association (IAs) in the Province of Tarlac

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Abstract

This case study research analyzed the experiences of thirty (30) Communal Irrigation Systems (CISs) in the National Irrigation Administration Tarlac Irrigation Management Office (NIA Tarlac IMO). This paper examined the problems, the causes, and the CIS's experiences with the implementation of the Free Irrigation Service Act. The type of sampling that the researcher used was purposive and stratified sampling. The instruments used were an interview guide and documentary analysis. The researcher interviewed the IA Presidents of the Thirty (30) Communal Irrigation Systems that participated in the study. Based on the profile of the Irrigators' Association, findings revealed that most of the CISs of NIA Tarlac IMO were established in 1986 up to 1990, wherein 11 CISs from different municipalities were organized. In terms of the service area, the average service area of a CIS organized by NIA Tarlac IMO is approximately to have with less than 299 hectares. The problems encountered by the CISs of NIA Tarlac IMO were stated during the conduct of the research. Also, the study proposed measures that may help the NIA Tarlac IMO and CISs in responding and addressing to these problems. Presented in the study were the recommendations that may be enacted by the CISs and NIA Tarlac IMO to further improve the CISs in Tarlac Province. The researcher intended that the implementation of the FISA by the NIA together with other government supports and programs for the farmers had impacted the farmers' productivity that would contribute to the improvement of the irrigation services and agricultural productivity of the irrigators' associations.

Keywords: *Communal Irrigation System, Free Irrigation Service Act, Irrigation, National Irrigation Administration*

Enhancing Practices for Operational Strategies of Laundry Shops: A Focus in Water and Energy Conservation

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Abstract

This qualitative research study explores the operational practices of local laundry shops in the community and determining effective strategies to conserve water and energy for the sustainable small business enterprises. The study aims to assess current practices, identify challenges, and propose strategies to improve sustainability in the laundry industry. There were five informants, including owners and employees of local laundry shops were interviewed to gather insights on their operational methods, awareness of current conservation practices, and the consumption of water and energy-saving measures. Through thematic analysis, the researchers able to identify common practices and barriers in their current operational methods that affects high volume of consumptions of water and energy. Through this analysis, the researchers able to discover potential significant practices that can be applied and adapted in their laundry shops to maintain water and energy-saving practices. The researchers therefore determine these challenges like lack of awareness of environmental sustainability, financial constraints, and lack of access to modern equipment. The researchers identified key influences on the adaption of more efficient method like to highlight the need for greater awareness and more accessible technologies to optimize resource used in the laundry sectors. The study concludes by providing recommendation for adapting eco-friendly technologies, improving training or resource management and collaborating with local stakeholders to enhance operational efficiency while promoting sustainability in the local laundry industries in local community. This research contributes valuable insights into enhancing environmental sustainability of small-scale laundry businesses in rural settings.

Keywords: *Energy Efficiency, Operational Strategies, Sustainable Practices, Water Conservation.*

Evaluation of Service Delivery of Drug Abuse Treatment & Rehabilitation Centers (DATRCS) in Region III

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Abstract

Drug addiction poses a significant global public health challenge, affecting individuals, families, and communities. Drug rehabilitation centers play a vital role in facilitating recovery and reintegration into society, yet their effectiveness varies widely. This study evaluates the service delivery of Drug Abuse Treatment and Rehabilitation Centers (DATRCs) in Region III, identifying their best practices, challenges, and opportunities for the improvement of their programs and services. Using a quantitative descriptive research design, data were gathered from medical and administrative personnel, as well as patients, across two DoH-accredited Government owned rehabilitation centers. Findings reveal a generally positive assessment of rehabilitation services, with high satisfaction in the Matrix Intensive Outpatient Program (Treatment Modality), Screening and Assessment of Persons Who Use Drugs (PWUDs), and Drug Dependency Examination (DDE) for the severity of use. However, community-based rehabilitation centers received lower ratings, indicating service delivery gaps. Key challenges include insufficient employee benefits, lack of regularization, high turnover rates among personnel, and financial barriers affecting patient participation. Despite these obstacles, the study highlights notable best practices such as individualized patient-centered treatment models, holistic and evidence-based therapeutic interventions, and structured recovery programs. Addressing these challenges requires policy reforms, increased funding, and stronger community support systems to enhance rehabilitation services. Strengthening collaboration among healthcare professionals, policymakers, and social service organizations is crucial for bridging service gaps and improving accessibility. This study offers critical insights for policymakers, healthcare professionals, and community organizations striving to refine addiction treatment strategies. By tackling key challenges and reinforcing best practices, rehabilitation programs can become more effective, accessible, and sustainable—fostering healthier communities, improving recovery rates, and reducing the social and economic burden of substance abuse. Therefore, the action plan may be considered to enhance the drug rehabilitation centers in the country.

Keywords: *Community-Based Drug Rehabilitation Centers, Dangerous Drugs Board, Drug Rehabilitation Centers, Rehabilitation Programs, Treatment Approaches*

The Philippine Army's Doctrine Manual Backlogs towards an Improved Doctrine Development System

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Abstract

This study analyzed the Philippine Army's doctrine manual backlog to improve its doctrine development system. Utilizing a quantitative descriptive research design, the study assessed data from 2019 to 2023, identifying significant gaps, inefficiencies, and areas requiring enhancement in the doctrine development process. A structured questionnaire was administered to 110 respondents, including planners, writers, proponents, end-users, and stakeholders involved in the doctrine manual creation process. Results indicated an increasing trend in doctrine manual backlogs due to unmet yearly targets. While the tracking of backlogs was generally perceived as effective, strategies to minimize backlogs and corrective actions for individuals or units involved were viewed less positively. Additionally, clarity of yearly targets was highly rated, yet consistency in meeting these targets revealed significant dissatisfaction among respondents. The study further evaluated doctrine development programs, policies, processes, proponents, and writers, highlighting favorable perceptions regarding clarity and communication of policies, adequacy of program funding, and the qualifications and experience of doctrine iv proponents and writers. However, stakeholder involvement and the effectiveness of feedback mechanisms for doctrine writers received moderate ratings, indicating room for improvement. Recommendations include enhancing stakeholder engagement, adopting agile project management methodologies, and improving resource allocation and training for doctrine writers. This research underscores the necessity for strategic interventions and institutional reforms in the doctrine development process, ultimately contributing to enhanced operational readiness, efficiency, and national security for the Philippines.

Keywords: *development programs, policies, processes, proponents*

Enhancing Customer Satisfaction Through Advanced Mobile Banking: A Study in Tanza, General Trias and Trece Martires City, Cavite

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Abstract

The rapid shift from traditional banking methods to mobile banking has transformed the financial industry. This study investigates how advanced mobile banking services enhance customer satisfaction in Tanza, General Trias, and Trece Martires City, Cavite. The research evaluates key factors such as security, perceived usefulness, ease of use, cost, and reliability. A survey of 100 mobile banking users was conducted to analyze their experiences and expectations. Findings indicate that security concerns and costs negatively affect satisfaction, while ease of use, reliability, and perceived usefulness positively influence customer experience. The study recommends that banks enhance security measures, streamline transaction costs, and optimize mobile banking features to align with customer expectations and improve retention rates

Keywords: *mobile banking, customer satisfaction, security, perceived usefulness, ease of use, cost, reliability, user expectations, financial industry, customer experience.*

Applying Systems Thinking to Chicken Production and Consumption: A Circular Economy Perspective from the Philippines

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Abstract

This research applied a systems thinking approach to analyze the sustainability of the Philippine chicken industry, examining its production and consumption cycle through the lens of a circular economy. The study investigated the interconnected components of the industry, from feed production and farming practices to waste management and consumer behavior. It identified critical challenges to sustainability across environmental, economic, and social dimensions. Environmentally, the study considered resource depletion, pollution, and waste generation resulting from current industry practices. Economically, it analyzed the viability and profitability of various stakeholders throughout the value chain, from smallholder farmers to large-scale producers and retailers. Socially, the research examined issues such as access to safe and nutritious food, fair labor practices, and community impacts of chicken production and consumption. Employing systems thinking, the research aimed to move beyond linear, fragmented approaches to problem-solving and instead offered a holistic understanding of the chicken industry's complex dynamics. This framework acknowledged the interdependencies between different parts of the system and helped reveal unintended consequences of interventions that focus on isolated components. The project proposed practical, circular economy-based interventions to address the identified challenges. These included promoting sustainable and locally sourced feed alternatives, optimizing farming practices to improve animal welfare and reduce environmental impact, developing efficient waste management systems that valorize byproducts and minimize waste disposal, and educating consumers about responsible consumption patterns. The study's ultimate goal was to strengthen the resilience and long-term sustainability of the Philippine chicken industry within a circular economy framework. This involved ensuring food security, supporting livelihoods, and fostering economic development while minimizing environmental harm and promoting social well-being. By transitioning toward circularity, the research envisioned an industry that operated in harmony with ecological boundaries, contributing to a more equitable and prosperous future for all stakeholders involved. The research findings provided policymakers, industry leaders, and community members with valuable insights for promoting sustainable development within the Philippine chicken sector and beyond.

Keywords: *Circular Economy, Chicken Industry, Systems Thinking, Philippines.*

GUnify: A Comprehensive and Optimized Event Management Solution Utilizing the Deflate Compression Algorithm

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Abstract

This study focuses on the development of the GUnify Information Management System as a platform to validate the effectiveness of the Deflate compression algorithm in optimizing storage requirements for associations with limited resources. GUnify addresses the challenges of managing memberships, events, web portals, and financial reports, providing a cost-effective solution for organizations unable to procure high-end computing resources. Integrating the Deflate algorithm significantly reduces data storage and transmission costs while maintaining performance and functionality. Developed iteratively using Agile Scrum methodology, GUnify adapts to evolving organizational needs and fosters stakeholder collaboration. Its architecture includes Membership Management, Event Management, Web Portal, and Finance Management modules, enabling process automation and enhanced data integrity. The Deflate algorithm ensures efficient storage and retrieval of key data such as member profiles, event schedules, financial reports, and transaction histories. Workflow diagrams illustrate how automation reduces manual tasks and supports decision-making. Additionally, the system's software quality was rigorously evaluated using the ISO 25010 standard, ensuring compliance with criteria such as functional suitability, performance efficiency, usability, reliability, security, and maintainability. This study demonstrates that the Deflate algorithm is a viable solution for optimizing storage and operational efficiency in resource-constrained environments, making GUnify a practical and scalable tool for association management.

Keywords: *GUnify Information Management System, Membership Management, Event Management, Web Portal, Finance Management. Deflate Compression Algorithm, ISO 25010*

Blue Ocean Economy Strategy for Sustainable Development of Aurora

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Abstract

Ascertain and analyze sustainable development opportunities in Aurora Province by leveraging Philippine Rise's resources through the Blue Ocean Economy Strategy, targeting inclusive growth in marine-based sectors such as fisheries, eco-tourism, renewable energy, and marine biodiversity conservation. Sustainable Development Goals aligned, the research fosters economic, social, and environmental resilience within coastal communities by promoting sustainable practices that prioritize local and national interests. Using a ***quantitative descriptive research design***, it studies marine sector initiatives that contribute to poverty alleviation (SDG 1) supports sustainable fisheries management, directly impacting food security and livelihoods, ensuring food for local population (SDG 2) job creation, enhanced food security, support health, and well-being (SDG 3) promoting resilient ecosystems, and enhance gender equality (SDG 5) on emergent renewable energy sources to energy accessibility and sustainability in coastal economics (SDG 7) empowering women workforce. SDG 8 emphasizing decent work and economic growth by optimizing Aurora's coastal economy, supporting fair labor conditions, generating sustained income within fisheries and eco-tourism. Study addresses innovation in marine industries (SDG 9), the development of sustainable coastal cities (SDG 11), and responsible production practices (SDG 12) to ensure balanced growth. Climate action (SDG 13), marine ecosystem protection (SDG 14),terrestrial ecosystem conservation (SDG 15) is explored, governance structures and strategic partnerships essential for preserving ecosystem health and resilience. Supporting clean energy (SDG 7), reducing inequalities (SDG 10),fostering industry and infrastructure (SDG 9), research illustrates how Aurora's Blue Economy achieve sustainable, inclusive growth. It concludes recommendations for partnerships (SDG 17) that enhance regulatory frameworks, promote environmental stewardship, advance economic and social equity in alignment with the SDGs. This study creates a strategic blueprint for sustainable resource management in Aurora and Philippine Rise, promoting long-term prosperity that is both economically inclusive and ecologically responsible.

Keywords: *blue ocean economy strategy, Philippine Rise, sustainable development goals, Aurora Province*

The Myths and Oral Traditions of the Tagakaolo Tribe towards Environmental Protection and Preservation in Malungon, Sarangani Province

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Abstract

In the distant hamlet of Barangay Panamin, Malungon, Sarangani Province, the Tagakaolo tribe has preserved a sacred bond with nature through myths and oral traditions passed down for generations. This study explores how these stories influence the tribe's environmental conservation practices, uncovering the intricate ties between their mythology and sustainable resource management.

Central to the Tagakaolo worldview are the myths of Lumabet and the ritualistic practices of Sayog and Tyananem, which serve as both spiritual guides and pragmatic tools for protecting sacred lands, water sources, and biodiversity. Utilizing a descriptive-qualitative case study approach, the research draws insights from Key Informant Interviews (KII), Focus Group Discussions (FGD), and participant observation with elders, leaders, and residents. The findings reveal a profound system of environmental governance rooted in reverence for nature, now challenged by modernization and external pressures.

Despite these challenges, this study highlights the relevance of indigenous knowledge in addressing contemporary environmental issues. The myths and rituals of the Tagakaolo not only preserve a way of life but also offer a potential blueprint for integrating indigenous wisdom into modern environmental policies. This research contributes to the discourse on sustainable development by showcasing how Indigenous Knowledge Systems and Practices (IKSP) can bridge the gap between traditional beliefs, education, and global conservation efforts.

Keywords*: Tagakaolo Tribe, Myths and Oral Traditions, Indigenous Knowledge, Environmental Protection, Environmental Preservation*

Sinapanan: "A new Feature for Food Tourism"

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Abstract

The aim of the study is to introduce Sinapanan, a novel feature intended to improve culinary tourism experiences, it aims to evaluate the acceptability of Sinapanan in preparing different dishes by conducting a taste test to assess the taste, texture, aroma and appearance of the different dishes.

Rather than merely utilizing basic meats, the researcher decided to establish the notion that employing traditional processed meat, especially Sinapanan, would increase the flavor and originality of diverse cuisines. The study investigates how Sinapanan provides tourists with a distinctive, immersive experience by utilizing state-of-the-art technologies and locally relevant culinary ideas. By incorporating real-time suggestions and cultural background, Sinapanan aims to serve as a connection between tourists and authentic local dining experiences.

Keywords*: Word Embedding, Keystrokes minimization, Attention, Tokenization, N-gram, Stemming, User experience enhancement.*

Availability and Management of Rice Straw of Select Rice Farmers in Isabela, Philippines

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Abstract

The widespread use of combine harvester during harvesting and threshing challenges rice farmers to efficiently manage their rice straw. There is also an extremely low adoption of sustainable rice straw management options by rice farmers. Thus, it is deemed necessary to estimate the total straw biomass generated by rice farmers and to describe their rice straw management practices. The main objective of this study was to assess the availability of rice straw and management options of rice farmers during the dry season in 2024. Case study was employed to attain the objectives of the study. Data gathered from household surveys and analyzed through descriptive statistics such as mean and ANOVA. Analysis revealed that the mean straw biomass of rough grain yield ha-1 is 5,219.73 kg. Moreover, the two factors that might influence the generation of higher quantities of rice straw were type of soil and planting method. Lastly, rice farmers predominantly managed their rice straw through in-situ straw incorporation but only few of them practiced straw mushroom production and surface retention. It has been demonstrated that there is a massive contribution of rice straw biomass in Isabela. This provided data for the authorities to carry out plans and initiatives, and to employ appropriate management to optimize the potentials of rice straw. The findings suggest that political will, partnership and collaboration, provision of physical infrastructures, and active participation of rice farmers are the main ingredients to the efficient management of rice straw. Through this, rice farmers will strengthen their technical efficiency and productivity, and will cultivate environmental efficiency.

Keywords: *Climate change mitigation, Environmental efficiency, Rice straw biomass, Rice straw management, Straw grain ratio*

Enhancement of Collaborative Filtering Algorithm with the use of Energy-Based approach in Dating Applications

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Abstract

Dating applications rely on recommendation systems to create meaningful matches, yet traditional Collaborative Filtering (CF) algorithms face limitations in handling mutual interest, evolving user preferences, and popularity bias. This study enhances the Energy-Based Collaborative Filtering (EBCF) algorithm by incorporating bidirectional energy scoring to improve mutual compatibility predictions, temporal embeddings with a time-decay factor to adapt to shifting user preferences, and penalty adjustment mechanisms alongside diversity conscious sampling to ensure fairness and diversity.

The enhanced algorithm prioritizes mutual interest by calculating bidirectional energy scores, reflects dynamic preferences through temporal embeddings, and mitigates popularity bias by normalizing the influence of high-activity users while promoting inclusivity for low-activity and niche users. Simulations using synthetic datasets modeled on user interactions in dating apps demonstrated improved match relevance, fairness, and recommendation diversity compared to the baseline EBCF algorithm.

These enhancements address key challenges in traditional recommendation systems, ensuring that dating applications provide more meaningful, personalized, and equitable matches. This study contributes to the development of more efficient and adaptive algorithms, fostering deeper connections and improved user satisfaction in modern dating platforms.

Keywords*: matchmaking, recommendation systems, collaborative filtering, temporal dynamics, diversity-conscious sampling, energy-based collaborative filtering*

An Enhancement of the Jaro-Winkler Fuzzy Searching Algorithm Applied in Library Search Engine

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Abstract

The Jaro-Winkler algorithm is widely used for approximate string matching, offering reliable similarity calculations between two strings. However, its performance declines with increasing string length due to bias against longer strings and its reliance on prefix similarity, which neglects significant suffix matches. This paper presents an Enhanced Jaro-Winkler algorithm that addresses these challenges by integrating a Rabin-Karp Rolling Hash – inspired technique and applying suffix weights to balance the prefix bias. Experimental evaluations using 100 words commonly found in book titles demonstrate the enhanced algorithm's robustness across varying fuzzy match thresholds (0.7, 0.8, and 0.9). Unlike the traditional algorithm, where higher thresholds reduce match accuracy, the enhanced algorithm consistently achieves 100% accuracy in identifying titles regardless of query position or threshold. Additionally, it showcases superior performance by improving the quality and quantity of retrieved results by an average of 125 titles compared to the traditional approach. These advancements highlight the algorithm's potential for improving search performance in applications requiring precise and flexible string matching.

Keywords*: Approximate String Matching, Fuzzy Matching, Fuzzy Logic, Jaro-Winkler*

Sustainable Development Through Click Green Projects: Commissioning Education for A Greater Cause

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Abstract

Achieving long-term change to address issues that are related to high-quality education, diminished inequalities, climate action, peace, justice, and strong institutions, as well as partnerships for the goals is the aim of any higher education institution. Sustainable development through green projects is a crucial aspect of addressing these issues to ensure better future for all. Identifying current Education for Sustainable Development (ESD)-relevant activities in a higher education institution not only promotes integration of ESD in the educational systems at all levels but also supports ongoing initiatives to enhance the quality and delivery of formal education in different programs namely teacher education, hospitality management, and industrial technology programs. The researcher created a comprehensive review of the school's click green program which drew data from a survey conducted. It was found out that the click green program supports other national and international programs for sustainable development. The researcher proposed the expansion of the program focusing on developing strategy, building partnerships and collaboration, securing funding, and implementing and monitoring. With a focus on non-teaching staff, school administrators, and, most importantly, teachers and students, the expansion of the program aims to lay out a set of steps to direct the higher education institution and the Local Government in creating suitable responses for ESD in the school.

Keywords: *chartering education, sustainable development, click green projects, higher education institution*

Influence of Electronic Service Quality of Biometric Authentication Technology on User Satisfaction in Electronic Banking: An Integrated Model of TAM and E-S-Qual

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Abstract

The development and adoption of new security technologies to combat fraud and cybercrime have become top priorities for financial institutions and banks in Vietnam. In compliance with Circular No. 17/2024/TT-NHNN issued by the State Bank of Vietnam, nearly 84.7 million bank accounts had been biometrically authenticated by early January 2025. However, challenges remain as users adopt new technologies and confront various issues associated with this transition. This study aims to explore the influence of electronic service quality, perceived ease of use, perceived usefulness, and perceived risk on user satisfaction with biometric authentication technology in electronic banking applications in Vietnam. This study presented a comprehensive conceptual model to understand user satisfaction by integrating an extended Technology Acceptance Model (TAM) with a modified scale for assessing electronic service quality (E-S-QUAL) to overcome existing limitations and align with the research context. An online survey of 300 respondents was conducted, utilizing Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) to validate the measurement model. Structural Equation Modeling (SEM) was then applied to examine the relationships between the constructs. The findings indicated that electronic service quality had a positive influence on user satisfaction, perceived ease of use, and perceived usefulness, while having a negative influence on perceived risk. Furthermore, perceived ease of use and perceived usefulness were found to positively influence user satisfaction, whereas perceived risk had a negative impact on user satisfaction. The results provide valuable insights for electronic banking service providers and policymakers in Vietnam. Understanding the factors contributing to user satisfaction enables electronic banking providers to improve the quality of biometric authentication services in their applications within the new legal framework. Policymakers can leverage these insights to refine and develop new legislation aimed at enhancing security in online transactions to reduce fraud and cybercrime.

Keywords*: biometric authentication, electronic banking, electronic service quality, user satisfaction.*

Online Food Delivery Services During and After COVID–19 Epidemic with A Bibliometric Analysis

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Abstract

This study aims to assess journal papers relevant to Online food delivery services during and after the COVID-19 epidemic. The study uses bibliometric analysis of 383 published articles in the Scopus database from 2019 to 2024. The bibliometric procedure assesses research performance and growth within an international impact framework, with Biblioshiny-R and VOSviewer visualizing overall research trends in Online food delivery services. The study results show that the production of scientific publications has skyrocketed during and after the COVID-19 epidemic. In addition, the results show China and India are the countries with the most publications relevant to Online food delivery services during and after the COVID-19 epidemic; the University of Sydney and The University of Sharjah are the leading institutions in the field based on total publications. The most recent keywords include online food delivery, fast food, food applications, the COVID-19 pandemic, e-satisfaction, and e-service quality.

***Keywords**: Online Food Delivery Service, Bibliometric Analysis, Biblioshiny, VOSveiwer, Scopus.*

Creating Carbon Credits: Unveiling the Dynamics of the Asean and East Asian Market

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Abstract

This study aims to explore the dynamics of carbon credit markets within the ASEAN and East Asian regions, focusing on their development, challenges, and potential for sustainability. Utilizing a mixed-methods approach, we conducted quantitative analyses of carbon credit transaction data alongside qualitative interviews with key stakeholders, including policymakers, industry leaders, and environmental experts. The results reveal a growing interest in carbon credits as a tool for mitigating climate change, yet significant barriers remain, including regulatory inconsistencies and market volatility. The findings underscore the importance of harmonizing regulations and fostering collaboration among countries to enhance market efficiency. This research contributes to the understanding of carbon credit mechanisms in Southeast Asia and East Asia, providing insights that could inform future policies and initiatives aimed at achieving regional sustainability goals.

Keywords: *Carbon Credits, ASEAN, East Asia, Climate Change, Sustainability*

Analysis of Green Viability Assessment System in Philippine Government Hospitals Towards Climate-Resilient Health Facilities

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Abstract

Health facilities contribute to greenhouse gas emissions, such emissions can be mitigated by using renewable, sustainable, and clean energy. As the health sector is significantly affected by the circumstances brought about by climate change, the Department of Health as the nation's leader in health is challenged to respond to this phenomenon by minimizing the carbon footprint of health facilities while delivering quality health care.

In line with the Department of Health's (DOH's) vision towards achieving universal healthcare for all, health facilities must be responsive in reducing vulnerability to climate change and disaster impacts by improving people's access to healthcare. The DOH through the Health Facility Development Bureau (HFDB) developed the technical standards for green and safe health facilities accompanied by a green viability assessment (GVA) tool for hospitals to comply with its eight (8) performance standards such as Governance; Energy Efficiency; Water Efficiency, Sanitation, and Hygiene; Health Care Waste Management; Environmental Resilience; Site Sustainability; Materials Sustainability, and Indoor Environmental Quality.

To achieve climate-resilient and environmentally sustainable health facilities by 2040, the DOH has included the strategic thrust Agenda #4: Handa sa Krisis (Ready for Health Crises) within the 8-Point Action Agenda. The analysis focuses on GVA tool submissions that have undergone field assessment and subsequent desk validation from 2022-2024. In 2024, a total of 176 government hospitals garnered three (3) to five (5) Green Star Ratings under the Green Viability Assessment System with an initial 32 government hospitals recognized in 2022.

With the implementation of the GVA System, the management of hospital and local government units shows support for the objective to ensure that hospitals provide quality health and safety to people while minimizing the carbon footprint of the health facilities.

Keywords*: DOH, Green and Safe Hospital, GVA tool, greenhouse gas emission*

Investigating the Effects of Solanum nigrum Linn. against Spodoptera frugiperda found in Nicotiana tabacum

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Abstract

Control, management, and eradication of *Spodoptera frugiperda* or Fall armyworm (FAW) was challenging without the extensive use of inorganic pesticides. However, extensive application of inorganic pesticides threatens human health, animals, and environment. Hence, natural and organic pesticides are eco-friendly substance needed to control the proliferation of FAW. The main objective of this study was to determine the effects of *Solanum nigrum Linn*. or Black nightshade or Am-amsi leaf and fruit aqueous extract to FAW found in *Nicotiana tabacum* or Burley tobacco plants. Field experimental method using completely randomized design was employed. Data gathered were analyzed through descriptive statistics such as mean and ANOVA. Phytochemical analysis revealed that Black nightshade contains flavonoids, saponins, steroids, and terpenoids. Secondly, FAWs were irritable upon application of Am-amsi aqueous extract and became immobile after 12 hours of application. Moreover, there was an increasing mortality of FAW in the four treatments after 24 to 72 hours of application. In addition, there was a significant difference between T1 or 25% concentration and T4 or 100% concentration after 36 hours; there was a significant difference between T2 or 50% concentration and T4 after 60 hours; and there was a significant difference between T1 and T4 after 72 hours. Finally, Post Hoc analysis showed that T3 or 75% concentration was comparable to T4 when compared to a synthetic insecticide. It has been demonstrated that T4 of the aqueous extract was the most effective against FAW while T3 was comparable to T4 concentration. The phytochemical components of Black nightshade or Am-amsi contributed to the irritability, immobility, and mortality of FAW. The findings suggest that Black nightshade or Am-amsi is a potential natural and organic larvicide against FAW. Through the use of leaf and fruit extract of Black nightshade or Am-amsi, tobacco farmers may control FAW which is safer, more cost-effective, and more eco-friendly pesticide.

Keywords*: Burley tobacco, organic pesticides, phytochemical analysis, Solanum nigrum Linn, Spodoptera frugiperda*

Intensive Teacher Training and its Impact in the Quality of Teaching and Learning Activities at Deped Camarines Sur

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Abstract

This research paper investigates the effects of intensive teacher training on the quality of teaching and learning activities at DepEd-Bagolatao National High School in Camarines Sur, involving a sample of 256 students. The study aims to determine how structured professional development programs influence pedagogical practices and student engagement. Utilizing a mixed-methods approach, data were collected through surveys, classroom observations, and interviews with teachers and students. The findings reveal that intensive training significantly enhances teachers' instructional strategies, leading to improved student performance and engagement in learning activities.

Quantitative analysis indicates that students taught by trained educators scored higher on standardized assessments compared to their peers taught by untrained teachers. Qualitative data further illustrate that teachers reported increased confidence in their teaching abilities and a greater willingness to adopt innovative instructional methods post training. Additionally, students expressed heightened interest in subjects taught by these trained educators, suggesting a positive correlation between teacher preparedness and student motivation.

The implications of this study underscore the necessity for ongoing professional development within educational institutions to foster an environment conducive to effective teaching and learning. Recommendations include the implementation of regular training sessions tailored to address specific pedagogical challenges faced by educators. This research contributes valuable insights into the critical role of teacher training in enhancing educational outcomes and advocates for policy reforms aimed at prioritizing teacher development initiatives.

Keywords: *intensive training, quality teaching and learning activities*

Assessment of Barriers to the Adoption of Sustainable Practices: A Mixed-Method Study in Vietnam's Construction Industry

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Abstract

Architectural design aimed at sustainability too often defaults to technological fixes and checklist compliance, potentially missing the mark when it comes to meeting the diverse and evolving needs of our communities. This research takes a critical look at this trend, arguing that a more proactive and comprehensive approach is essential. We explore integrating "futures thinking" - a set of methods for anticipating change directly into how architects design. Think of it as using tools like horizon scanning and scenario planning to anticipate future social shifts, cultural shifts, environmental challenges, and new technologies. It's about envisioning the world our buildings will inhabit, rather than just meeting today's codes.

To explore this in practice, we present a case study of design studios at the Hanoi University of Civil Engineering. Here, students in the Master of Architecture and Master of Sustainable Design programs are actively using futures-oriented design methods. By analyzing their project proposals, we demonstrate the real pedagogical value of this approach. It's clear that future thinking fosters a more critical understanding of the architect's role in shaping a truly sustainable built environment. It also unlocks the potential for creative and context-specific solutions, designed to tackle the challenges we anticipate down the road. By empowering future architects with the ability to envision and proactively shape their world, we aim to bridge the gap between current practices and the complex realities of a rapidly changing future, ultimately building a more resilient, responsive, and equitable world through thoughtful design.

Keywords*: approach, resilient, responsive, creative and context-specific solutions*

Detection Tomato using Vgg19 and Explainability XAI

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Abstract

Early detection and diagnosis of tomato diseases is essential to ensure healthy harvests and reduce economic losses. This paper explores the use of the VGG19 convolutional neural network to identify the 10 class diseases of tomato from dataset images obtained from Kaggle site it compares images representing various tomato diseases divided into 3 training, validation, and testing datasets. The breakdown was as follows and incorporates explainable artificial intelligence (XAI) LIME(Local Interpretable Model-agnostic Explanations) techniques to improve the interpretability of the results. In our study show that VGG19 offers a high accuracy of 85% for validation, 87% for training and that XAI methods allow a better understanding of the model's predictions.

Keywords*: machine learning, deep learning, black box, transparency, explainable (XAI).*

Mapping the Geographical Distribution of Anabo (Abroma augusta Linn) Species in Apayao

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Abstract

This study aimed to map the location Anabo *(Abroma augusta Linn)* in Apayao through Geographic Information Systems (GIS) tool. This plant is rich in fiber. The plant's fiber has potential not only in traditional use but also in emerging eco-friendly textiles. The said plant is widely distributed in the seven municipalities of the province, thus, it has the potential as source of raw materials for fiber extraction. Mapping the geographical distribution of *Abroma augusta* is essential for understanding the plant's ecological requirements, conservation status, pharmacological and textile potential, and cultural significance.

Keywords: *plant is widely distributed*

Potential of Enhanced Probiotic (Provet) as Dietary Supplement for Growing-Finishing Pigs

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Abstract

The study entitled: Potential of Enhanced (Provet) Probiotic as Dietary Supplement for Growing-Finishing Pigs" was conducted at Agriculture Instructional, Research, and Production Units aims to evaluate its potential as dietary supplement for growing-finishing pigs in terms of body weight, gain in weight, average daily gain (ADG), Feed Consumption, and Feed Conversion Ratio, and the Return on Investment (ROI). The study was laid out using the Completely Randomized Designed (CRD). The least significance difference (LSD) was used for the comparison of means, if the result is significant. The treatments as basis of comparison were Treatment 1- Control (No Probiotic), Treatment 2. Commercial Probiotic, Treatment 3. 20ml of Enhanced (Provet) Probiotic, Treatment 4. 30ml of Enhanced (Provet) Probiotic. Highly significant ($P< 0.01$) result were observed on the growth parameters of growing-finishing pigs such as body weight, gain in weight, and the average daily gain (ADG) wherein, animals treated with 20ml provet probiotic took advantaged with the control treatment and the animals treated with 5 grams commercial probiotic. With the body weigh advantage of animals treated with 20ml provet probiotic, the Return On Investment (ROI) was significantly advantage compared with the pigs in other treatments. In is therefore concluded that the 20ml provet probiotic has something to do on the growth parameters of growing-finishing pigs, its utilization significantly affecting the return on investment, and safe to use for animal consumption. Therefore, it is recommended to use the 20ml provet probiotic and best to mixed with feeds and be utilized by pigs in the morning. Further study on provet probiotic be conducted for early and post weaned piglets, and gestating sow.

***Keywords**: probiotic, dietary supplement, potential, growth*

Cytotoxicity of Native Fruit Trees and Ethnomedicinal Tress

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Abstract

This study was conducted in the selected municaplities of Apayao, province namely Municipality of Luna, Pudtol, Flora, Conner, Kabugao and Calanasan. It aimed to characterize the native fruit and ethnomedicinal trees in Apayao province and to determine the cytotoxicity analysis of these trees. Cytotoxicity testing is a critical tool in ensuring safety and efficacy of products as well as in advancing scientific understanding of cellular response to various substances. A descriptive research design was employed, involving both fieldwork and chemical laboratory analyses. Methanol extracts from various species of these native and ethnomedicinal trees, were evaluated for their cytotoxic potential against cancer cells. The study found that out of sixteen (16) species tested, four (4) species exhibited high cytotoxicity, three (3) species showed moderate cytotoxicity, six (6) species were identified as weak to non-cytotoxic, and three (3) species were noted to promote breast cancer cell proliferation. The threats to the survival of these trees include extreme weather events such as droughts, typhoons, and forest fires

Keywords*: Native fruit trees; ethnomedicinal trees; cytotoxicity*

Experiences on the Use of Generative Artificial Intelligence (AI) Tools for Research Writing Among Graduate School Students of ASC Conner Campus

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Abstract

Artificial intelligence (AI) has the power to revolutionize the field of education by enhancing teaching and learning experiences. The study aimed to explore the experiences of students of using Generative AI tools in research writing. It employed qualitative research particularly phenomenology. There were 15 students from the Graduate School who were selected for the study. In this study, students' experiences on using generative AI tools for research writing were thematized/ analyzed. Results revealed that students had varied purposes of using generative AI tools for the first time during their research writing process. Moreover, it is evident that the participants in this study had positive and negative experiences in using generative AI tools for research. It is recommended to strengthening the skills for effective use of generative AI tools in academic writing just like in research and thesis writing. The courses of the graduate school should be reviewed to incorporate competencies on utilization of AI tools to ensure that both students and teachers are well prepared for the responsible and effective use of AI tools and apps since AI have penetrated the teaching- learning process.

Keywords: *technology. artificial intelligence, generative, experiences, AI tools*

Purchase Behavior of Restaurant Operators Towards Seafood Products in Lianga Bay, Surigao Del Sur

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Abstract

This study examines the purchasing behavior of restaurants concerning seafood products, with a specific focus on the factors that shape procurement decisions in the municipalities of Lianga and Barobo, around Lianga Bay, Surigao del Sur, Philippines. Given the region's expanding food tourism sector, understanding the dynamics of seafood sourcing is crucial for ensuring both business sustainability and local economic growth. This research aims to identify key determinants such as product quality, pricing, supplier relationships, availability, and sustainability considerations that influence restaurant operators in their seafood procurement choices. Employing a quantitative descriptive methodology, the study surveyed 15 restaurants in these municipalities to assess their seafood sourcing strategies, challenges, and opportunities. Findings reveal that freshness and quality are paramount considerations, as they directly impact customer satisfaction and business reputation in the restaurant sector. However, price instability, supply chain inefficiencies, and inconsistent availability pose significant challenges for restaurant operators. Despite these constraints, a strong preference for locally sourced seafood emerged, highlighting the potential for strengthening linkages between local fishermen, aquaculture producers, and the restaurant industry. Furthermore, the study underscores the importance of establishing more resilient and sustainable supply chains, advocating for improved logistics, market coordination, and strategic partnerships between suppliers and buyers. These insights provide valuable recommendations for seafood producers, marketers, and policymakers to align their strategies with the needs of restaurant businesses while promoting sustainable fishing and aquaculture practices in the province. Ultimately, this research contributes to enhancing the local seafood industry's competitiveness and ensuring the long-term viability of Surigao del Sur's culinary and tourism sectors.

Keywords*: purchase behavior, restaurant operators, seafood products, marketing decisions, supply chain*

Curriculum (Mis) Alignment: A Qualitative Study Of The Industrial Arts Work Immersion Students' Competency

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Abstract

This study aimed to explore industry partners' perceptions of the Industrial Arts work immersion students' competency through an exploratory research design. It investigated the industry partners' expectations, perceptions, challenges, and issues regarding the knowledge, abilities, and attitude of deployed SHS students in the industry partners' workplace. This is to determine whether the TLE and TVL Industrial Arts curricula align with the requirements of the industry for competency since literature and studies imply that graduates of K to 12 suffer high rates of youth unemployment and even low employability owing to job mismatch.

The findings revealed that students in the Industrial Arts strand are more likely to have job mismatches due to curriculum misalignment. This is the non-correspondence of the competencies developed by learners from the K to 12 TLE and TVL Industrial Arts curricula to the competency needs of the industry. The industry partners observed curriculum misalignment because the fundamentals of the Industrial Arts work immersion students were lacking, as evidenced by their lack of competence due to their unfamiliarity with the operations and jobs in the industry. Furthermore, their functional self-management was inefficient, as seen by their inability to work independently and misconduct due to their disinclination in their area of specialization.

Keywords: *Technical-Vocational Education, curriculum, qualitative research, Philippines*

SWOT Analysis on Covid 19 Pandemic Towards Business Retailers

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Abstract

The Covid 19 pandemic has dramatically changed the retail industry in selling their products or services to their target customers. Moreover, the pandemic's detrimental effects on the retail sector have demonstrated the necessity of creating business strategies to ensure business survival and its sustainability industry. Thus, a strengths, weaknesses, opportunities, and threats (SWOT) analysis was conducted. A mix method was used among the retail business owners to ensure accurate data analysis and interpretation of the study. The most frequent benchmark statements during the interview were presented in the SWOT analysis and quantitative analysis were used for the evaluation of the said benchmark statements through weighted mean. Based on the result of the study, the business retailers have excellent quality products, but they don't have enough budget to promote it, and most of their problems are the IATF guidelines or travel restrictions that could affect the operations of their businesses. Therefore, in order to ensure survival and sustainability of their business, they should promote their products or services in the least cost possible. Moreover, they should strategies to sell their products through different social media platforms and offer delivery services during lockdowns or travel restrictions.

Keywords: *Business Survival, Sustainability Industry, Product Promotion, Business Strategies, Social Media Platforms*

Perception of Students on Individual and Collaborative Approaches in the Study of Trigonometry

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Abstract

Trigonometry is widely regarded by students as one of the most challenging course in mathematics. Improving the retention of trigonometric knowledge requires approaches that actively engage learners. Both individual and collaborative learning approaches offer distinct advantages, but each also has limitations. The most effective strategy likely depends on students' individual preferences, needs, and learning styles. By adapting the learning experience to these factors, educators can identify the approach that best supports students in mastering Trigonometry. This study explores the perceptions of third year and fourth-year education students major in mathematics at Pamantasan ng Lungsod ng Marikina regarding individual and collaborative approaches to studying Trigonometry. The research examines students' perceptions based on factors such as self-realization, autonomy, emotional independence, and social differentiation for the individual approach, and positive interdependence, considerable interaction, individual accountability, and social skills for the collaborative approach. It also explores potential differences in perception between third-year and fourth-year students and identifies possible learning development programs to enhance both approaches. A descriptive, quantitative design was used, with purposive sampling to select participants. A 4-point Likert scale measured students' perceptions, and T-tests were conducted to assess significant differences between the two student groups. The findings revealed that both groups valued individual and collaborative approaches. However, while there were no significant differences in perceptions of the collaborative approach, a slight difference was observed in the individual approach. These results suggest that both learning approaches are important, and learning development programs could further enhance their effectiveness in studying Trigonometry, offering insights into how students at different academic levels engage with and perceive learning strategies.

Keywords: *students' perception, individual approach, collaborative approach, Trigonometry*

Community Needs Assessment among Residents of Barangay Palico II in Imus City, Cavite:Basis for Community-Based Extension and Development Program

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Abstract

A community needs assessment provides the basis for developing effective programs so that actions align with the community's real needs, problems, and objectives. Like an organized process, it fosters a feeling of mutual responsibility between the program implementers and the community, thereby making community-based interventions more effective.

The study aimed to establish the requirements of the people of Barangay Palico II, Imus City, Cavite so it could serve as the basis of a community-oriented extension and development program. 95 residents were surveyed, with the quantitative method applied in quantifying data and service gaps. The evaluation was also founded on the five-point agenda of the Imus City Government, namely: Health, Education, and Public Services; Good Governance; Housing and Livelihood; Infrastructure; and Environment.

Findings showed that in Health, Education, and Public Services, the priority concerns are emergency services, health centers, medical assistance, scholarship grants, educational assistance, and daycare centers. Financial assistance, senior citizen assistance, and women's protection programs were also mentioned as needed public services. Under Good Governance, the respondents' concerns were school safety, peace and order, and police presence. For Housing and Livelihood, safe and accessible housing was a priority, and job fairs, skills training, and apprenticeship programs were mentioned as needed interventions for economic empowerment. In Infrastructure, the most pressing concerns were more streetlights, an improved transportation system, and road-clearing operations. Lastly, in the Environment category, the respondents mentioned the need for clean and green programs, cleanup operations, and street sweepers. The study emphasizes the importance of data-driven planning in community-based program development to make interventions responsive to the actual needs of the residents. The findings provide valuable input to local government units, policymakers, and community stakeholders in formulating targeted development programs that promote sustainable community development.

Keywords: *Health, Education and Public Services; Good Governance; Housing and Livelihood; Infrastructure; and Environment.*

Field Performance of Large Fishtail Palm *(Caryota rumphiana Mart. var. philippinensis Becc.)* Intercrop with White Lauan (Shorea contorta)

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Abstract

This study was conducted to determine the effect of varying levels of vermicompost in the growth performance of large fish-tailed palm (Caryota rumphiana Mart. var. philippinensis Becc.), locally known as "anibong". Randomized complete block design (RCBD) was used in the study. Five treatments were observed with three replications. Treatments are as follows: Treatment A- No fertilizer (control), Treatment B- 500 grams (Vermicompost), Treatment C- 750 grams (Vermicompost), Treatment D -1,000 grams (Vermicompost) and Treatment E -1,250 grams (Vermicompost). A total of 180 palm propagules was used in the study. Two parameters were observed in the study, diameter increment and height increment. The study was conducted from September 2022 to August 2024 with a duration of 22 months. Results showed that the utilization of vermicompost at the rate 1,200 grams per palm propagules grows the tallest, reaching a height of 465.00 centimeters when compared to a lesser rate at 1,000, 750, and 500 grams respectively. Consequently, similar pattern was observed in the height increment, where plants treated with 1,200 grams of vermicompost were 137.82%, 111.27%, 38.55%, and 17.10% taller than plants treated with control, 500 grams, 750 grams, and 1000 grams, respectively. Further, the utilization of vermicompost at 1,250 grams per plant, yield the biggest diameter at 91.60 mm compared to other treatments. This indicates that increasing the amount of vermicompost significantly enhances the diameter of fishtail plants.

The findings suggest that fishtail palms can thrive in soil with high organic matter content.

Keywords: *Underutilized indigenous forest food crops, vermicomposting, vermicompost*

A Cross-Platform Blood Donation System with Data Analytics

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Abstract

Recognizing the increasing need for a more effective and accessible blood donation system, a Cross-Platform Blood Donation System With Data Analytics was developed. This is an innovative cross-platform social networking application tailored for blood donation in Imus, Cavite. This initiative aims to foster meaningful connections between blood donors and recipients by offering a dedicated platform that simplifies the process of finding and coordinating blood donations. This platform sets itself apart from traditional social media platforms by prioritizing trust and security through strong user verification methods. These include one-time password (OTP) authentication and the submission of valid identification. The goal is to connect donors with those in need, fostering a supportive community dedicated to saving lives. The system is designed with several essential features that enhance its functionality and user experience. One of its core components is a sophisticated donor-recipient matching module, which utilizes algorithms to ensure optimal pairing based on various criteria, such as location, compatibility, and availability. This feature streamlines the donation process, making it more efficient and responsive to user needs. In addition to matching, the system includes a comprehensive real-time data analytics feature that empowers users with insights into transaction trends, user interactions, and operational efficiencies. This capability not only supports informed decision-making but also allows for proactive adjustments to improve service delivery. The messaging functionality enhances communication between donors and recipients, fostering a transparent and supportive environment throughout the transaction process. Users can easily share updates, ask questions, and provide feedback, which is crucial for building trust and ensuring a positive experience. To ensure the integrity of transactions, a transaction monitoring system is integrated into the framework. This system tracks all interactions and exchanges within the platform, flagging any anomalies or potential issues that may arise, thereby maintaining a high level of security and compliance. The platform boasts cross platform compatibility, enabling users to access the service effortlessly through both web browsers and mobile applications. This flexibility caters to a diverse user base, allowing individuals to engage with the system conveniently, regardless of their preferred device. The research and development process for this system follows the Spiral Model in its software development lifecycle. This iterative approach emphasizes continuous evaluation and enhancement, integrating user feedback at every stage to ensure the product evolves in alignment with user expectations and industry standards. Through repeated cycles of planning, risk analysis, development, and user evaluation, the

system remains adaptive and responsive to the changing needs of its users. The evaluation process of the study engaged a diverse group of stakeholders, including experienced IT professionals, dedicated blood donors, grateful recipients, and members of the Blood Donations organization. The results from this comprehensive assessment highlighted exceptional levels of system usability, robust functionality, and remarkable reliability. Key findings indicated that this platform serves as an effective tool for streamlining the coordination of blood donations, while simultaneously implementing safeguards to prevent fraudulent activities. This system represents an innovative and forward thinking approach to managing blood donations. It significantly enhances accessibility, boosts operational efficiency, and fosters a greater sense of trust within the community, ultimately improving the blood donation ecosystem for all involved.

Keywords*: Blood-donation system; Data analytics; cross-platform*

Analysis of Environmental Literacy and Sustainable Development Goals (SDGs) Competence Among Community Leaders: Bases for Technology-Assisted Module for Green Management Advocates

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Abstract

This study assessed the environmental literacy and Sustainable Development Goal (SDG) competence of community leaders in Aklan to develop a Technology-Assisted Green Management Module aimed at enhancing sustainability leadership. The study utilized the ADDIE Model (Analysis, Design, Development, Implementation, and Evaluation) to systematically address research objectives and evaluate the effectiveness of the intervention. The Analysis phase involved conducting surveys, Focus Group Discussions (FGDs), and In-Depth Interviews (IDIs) to examine the environmental literacy and SDG competence of community leaders. The study analyzed demographic factors such as age, gender, and geographical location, revealing disparities in engagement and leadership capabilities. Thematic analysis was used to identify key themes related to the environmental challenges and leadership gaps in sustainable practices. The triangulation of quantitative and qualitative data enhanced the reliability of the findings by combining statistical trends with deeper insights into the leaders' environmental practices and sustainability initiatives. The Needs Analysis identified significant gaps in environmental literacy, SDG competence, and green management skills. The analysis revealed that although leaders demonstrated some level of awareness, practical application of sustainability practices was weak. Younger and marginalized leaders exhibited a need for tailored interventions that addressed both their leadership training and resource constraints. In the Design phase, the KAP Framework (Knowledge, Attitudes, Practices) was applied to develop the Technology-Assisted Green Management Module, which sought to fill the identified knowledge gaps, influence attitudes toward sustainability, and improve practical environmental management skills. The Development phase involved a Quality Assurance (QA) process, during which experts in environmental education and technology-based learning refined the module's content to ensure cultural relevance, adaptability, and scalability across different communities. The Implementation phase utilized pre-tests and post-tests, alongside module deployment through a Facebook page and capacity-building seminars, to evaluate the impact on participants' knowledge and behavior. Statistical analysis of the pre- and post-test results showed a significant improvement in participants' environmental knowledge, attitudes, and sustainability practices. The Evaluation phase involved collecting feedback through surveys, observations, and interviews to assess the module's

usability, effectiveness, and relevance. Despite its positive impact, the evaluation highlighted the need for improvements in emotional engagement, digital interactivity, and platform optimization, especially for younger and marginalized groups. The study found a strong positive correlation between environmental literacy and SDG competence, suggesting that enhancing environmental literacy can directly improve leaders' abilities to implement SDGs effectively. Based on these findings, the study recommended that government agencies, NGOs, educational institutions, community leaders, and technology developers collaborate to strengthen sustainability education, integrate SDGs into local policies, and promote inclusive leadership training. The multi-stakeholder approach is crucial to ensuring long-term environmental resilience and policy integration. This research underscores the critical role of digital learning tools in fostering environmental literacy and leadership, positioning the Technology-Assisted Green Management Module as a scalable model for community-based sustainability education.

Keywords: *abilities to implement SDGs effectively, scalability across*

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