ZEP RESEARCH
"PIONEERING INNOVATION, SHAPING THE FUTURE"

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Acknowledgement

It is a privilege to host the 3rd International Conference on Sustainability, Innovation and Future Technologies (3rd ICSIFT 2026) in Boracay, Philippines, on 21st –22nd August, 2026. This conference has been designed as a platform for sharing emerging ideas, discussing contemporary challenges, exchanging professional experiences, and fostering meaningful connections among researchers and professionals from different fields.

I would like to express my sincere appreciation to our colleagues, staff, professors, reviewers, speakers, session chairs, and members of the organizing committee for their dedication, cooperation, and valuable support throughout the preparation of this conference. My heartfelt thanks also go to all our authors, presenters, delegates, and participants who have taken the time and effort to join us and contribute to this academic gathering.

Your participation, knowledge, and enthusiasm are what make 3rd ICSIFT- 2026 a meaningful opportunity for learning, collaboration, networking, and professional growth.

With heartfelt gratitude,

Priyanka Sahu

Mrs. Priyanka Sahu
Director
Zep Research

Editorial

Dear Readers,

It is a privilege to be part of the **3rd International Conference on Sustainability, Innovation, and Future Technologies (3rd ICSIFT)**, anchored on the theme **"Sustainable Innovation: Bridging Technology and Environmental Stewardship."** This conference book represents more than a collection of scholarly works; it reflects a shared commitment among researchers, educators, practitioners, and thought leaders to advance knowledge and develop meaningful responses to the complex challenges confronting our society and environment.

At a time when technological progress continues to reshape the way we live, work, and interact with the world, the pursuit of innovation must be accompanied by a strong sense of responsibility. Sustainability calls upon us to look beyond immediate gains and consider the long-term consequences of our decisions. The studies, perspectives, and ideas presented in this conference demonstrate how research and innovation can contribute to solutions that promote progress while safeguarding our environment and the well-being of future generations.

As Editor, I am pleased to see this conference bring together diverse scholarly perspectives and disciplines. Such diversity reminds us that the challenges of sustainability cannot be addressed within the boundaries of a single field. Meaningful and lasting solutions emerge when knowledge is shared, disciplines intersect, and institutions and communities work together toward common goals. Through this conference book, we hope that the exchange of knowledge extends beyond the conference itself and inspires further research, collaboration, and practical application.

I extend my sincere appreciation to the authors, reviewers, speakers, organizers, partner institutions, and participants whose contributions have made the **3rd ICSIFT** and this publication possible. Your dedication to scholarship and innovation strengthens our collective pursuit of a more sustainable, resilient, and technologically responsible future.

May the ideas contained in these pages stimulate further inquiry, encourage meaningful partnerships, and inspire actions that transform knowledge into positive and lasting impact.

Warm Regards,



Manuel O. Malonisio, PhD
Editor, 3rd ICSIFT-2026

Preface

The 3rd International Conference on Sustainability, Innovation and Future Technologies (ICSIFT 2026), organized by ZEP Research, will be held on August 21–22, 2026, in Boracay, Philippines, with both onsite and online participation to provide greater accessibility to researchers and professionals from different parts of the world.

It is our privilege to welcome Dr. Wilson Cordova, LPT, CRS and Frissida Asid-Daud, RN, MAN, PhD, our Conference Chairs; Dr. Sherha Ballaho Baybayan, Conference Co-Chair; and our Organizing Secretaries, Dr. Liane Vina G. Ocampo and Dr. Rania D. Abduraup, whose leadership, coordination, and dedication contribute greatly to the successful organization of this international gathering.

We are honored to have our distinguished Keynote Speakers — Prof. Charisma Samparani Ututalum, Dr. Julie Ann Acebuque-Salido, Dr. Waiphot Kulachai, Prof. Marina Falasca, and Dr. Helen Boholano — sharing their expertise, insights, and perspectives with our participants. We also extend a warm welcome to our Guest of Honor, Dr. Jeffrey A. Clarin, whose presence adds special significance to the occasion.

Our sincere appreciation goes to the Session Chairs — Dr. Veronica Sarcino-Almase, Malikha Ilupa, RAgr, MSA, Marjohn Villamor Anislag, PhD, Dr. Florante D. Poso, Jr., and Karen Razelle M. Duyan — for their valuable role in facilitating meaningful academic discussions and technical exchanges.

ICSIFT 2026 aims to provide an international platform for researchers, educators, professionals, and industry practitioners to present emerging research, exchange knowledge, discuss contemporary challenges, and explore innovative approaches across sustainability, environmental sciences, engineering, management, education, innovation, and future technologies.

Through keynote addresses, technical presentations, discussions, and networking opportunities, we hope to encourage interdisciplinary collaboration and inspire practical ideas that contribute to a more sustainable, innovative, and resilient future.

We extend our sincere gratitude to all speakers, researchers, presenters, delegates, reviewers, partner institutions, sponsors, and members of the organizing team whose dedication and support have made ICSIFT 2026 possible.

Welcome to 3rd ICSIFT 2026 — a platform for knowledge, innovation, collaboration, and a shared vision for the future.

3rd International Conference on Sustainability, Innovation and Future Technologies

Boracay, Philippines
21st -22nd August, 2026

Organizer's Message



Mrs. Priyanka Sahu
Director, ZEP Research, India

Dear All,

It is our pleasure to present the proceedings of the 3rd International Conference on Sustainability, Innovation and Future Technologies (ICSIFT 2026), held on August 21–22, 2026, in Boracay, Philippines.

This volume brings together the valuable work of researchers, academicians, educators, industry professionals, and practitioners who share a common commitment to advancing knowledge, encouraging innovation, and contributing meaningful solutions to the challenges of our time.

3rd ICSIFT 2026 provides a platform for interdisciplinary exchange, bringing together diverse perspectives across sustainability, environmental sciences, engineering, management, education, innovation, and emerging technologies. The research presented in these proceedings reflects the creativity, dedication, and continuing efforts of scholars and professionals to transform ideas into practical and impactful solutions.

We sincerely thank all authors, reviewers, keynote speakers, session chairs, delegates, partner institutions, and members of the organizing team for their valuable contributions and continued support. Your collective efforts have played an essential role in making this conference a meaningful academic and professional gathering.

We hope that the ideas and research presented in this volume will encourage further inquiry, collaboration, innovation, and meaningful action beyond the conference.

It is our privilege to welcome you to ICSIFT 2026 and to continue building a community committed to shaping a more sustainable, innovative, and future-ready world.

Warm Regards,

Priyanka Sahu

Mrs. Priyanka Sahu
Director, ZEP Research, India

Guest Speaker



Jeffrey A. Clarin, DIT
University President,
Aklan State University, Philippines

Welcome Message

Distinguished guests, local and international delegates—a very warm welcome to the 3rd International Conference on Sustainability, Innovation, and Future Technologies (ICSIFT 2026) on the paradise island of Boracay, Malay, Aklan, Philippines.

On behalf of Aklan State University (ASU), it is my distinct honor and privilege to welcome you all to this conference. As an institutional partner of ICSIFT 2026, ASU is deeply committed to nurturing global academic synergy and supporting platforms that drive transformational change.

We gather at a crucial juncture in history. The grand challenges of our time—from climate resilience and environmental stewardship to the ethical deployment of emerging technologies—require more than isolated solutions. They demand cross-border collaboration, visionary research, and an unwavering commitment to sustainable progress.

ICSIFT 2026 brings together the brightest minds across disciplines to ask necessary questions: How do we innovate without compromising our planet's future? How do future technologies serve equity, humanity, and sustainability?

At Aklan State University, we believe that higher education must serve as both a catalyst and a compass for sustainable development. Through strategic academic partnerships, groundbreaking research, and community-driven extension programs, we continuously strive to bridge local impact with global standards.

To our international partners and delegates, thank you for bringing your knowledge, expertise, and shared vision to this platform. May the research presented, the ideas exchanged, and the networks established over the course of this conference translate into meaningful, real-world solutions.

Welcome to ICSIFT 2026, and I wish us all a productive, inspiring, and transformative conference! Mabuhay tayong lahat, and thank you very much.

Warm Regards,

Jeffrey A. Clarin, DIT
Guest Speaker,3rd ICSIFT-2026

Keynote Speakers



Dr. Julie Ann Acebuque-Salido
Vice President
Aklan State University Banga, Aklan, Philippines

Message

It is a great honor to join the International Conference on Sustainability, Innovation, and Future Technologies (ICSIFT 2026) as a Plenary Speaker. I am privileged to be part of this gathering of researchers, academicians, professionals, and innovators committed to advancing knowledge and creating meaningful solutions for society.

As rapid technological advancement continues to reshape our world, we are challenged not only to generate new knowledge but also to ensure that research and innovation remain responsible, inclusive, sustainable, and responsive to societal needs. ICSIFT 2026 provides an important platform for exchanging ideas, strengthening collaborations, and transforming research into real-world impact.

I commend the organizers for bringing together this vibrant community of scholars and professionals. May the conference inspire new ideas, meaningful partnerships, and innovations that contribute to a more sustainable and resilient future.

I look forward to sharing and learning with all of you at ICSIFT 2026.

Mabuhay, and may ICSIFT 2026 be a resounding success!

Warm Regards,

Dr. Julie Ann Acebuque-Salido
Vice President
Aklan State University Banga, Aklan, Philippines



Prof. Marina Falasca
COIL Program Coordinator, GlobalEd STAR Country Director, Argentina
National Technological University, Argentina

Message

It is a great honor to serve as a keynote speaker at the 3rd International Conference on Sustainability, Innovation & Future Technologies. I am deeply grateful to the organizers for bringing together educators, researchers, and professionals from diverse contexts to exchange ideas, challenge perspectives, and explore innovative ways of shaping more inclusive and sustainable futures for education.

My keynote, **"Ethical AI Integration in COIL: Reimagining Global Higher Education for Sustainable Development and Inclusive Innovation,"** draws on my experience with **COIL en Clave ODS**, a five-week professional development program that connected educators from seven countries around global citizenship, the Sustainable Development Goals, and international collaboration. This experience has reinforced my belief that meaningful internationalization is not simply about connecting people across borders, but about creating purposeful opportunities to learn with and from one another while addressing the complex challenges we share.

As Artificial Intelligence continues to reshape education, we are also called upon to think critically about how and why we use these technologies. AI can enhance accessibility, multilingual communication, creativity, and collaboration, but its potential to democratize global learning depends on ethical, inclusive, and responsible implementation. Most importantly, technology should strengthen—not replace—the human expertise, creativity, and judgment at the heart of education.

I look forward to sharing these experiences, learning from colleagues and their diverse perspectives, and contributing to conversations that can spark new partnerships and meaningful innovation. May this conference inspire us to use technology thoughtfully and collaboratively to build a more sustainable, inclusive, and connected future for higher education.

Warm Regards,



Prof. Marina Falasca
Keynote Speaker, ICSIFT 2026



Prof. Charisma Samparani Ututalum
President
Sulu State University, Philippines

Message

I am truly honored to be part of the **3rd International Conference on Sustainability, Innovation, and Future Technologies 2026** as one of the invited speakers.

This upcoming conference is more than just a gathering of researchers, educators, and professionals. It is an opportunity to bring together diverse ideas, perspectives, and experiences that can inspire meaningful contributions to research, education, technology, and sustainable development.

I look forward to sharing my presentation, **"Future-Proofing Human Capital: The Strategic Role of Universities in the Knowledge Economy through the Halal University Framework,"** and engaging in meaningful discussions with fellow scholars, practitioners, and leaders from various disciplines. I believe that through the exchange of knowledge and experiences, we can discover innovative approaches that will help shape a more resilient, inclusive, and sustainable future.

As we prepare for this important event, I hope that **ICSIFT 2026** will serve as a platform for inspiring conversations, innovative ideas, and partnerships that will continue beyond the conference.

I am grateful to the organizers, partner institutions, speakers, and participants who have contributed to making this conference possible. I look forward to welcoming you all to **Boracay on 21st –22nd August, 2026.**

See you at ICSIFT 2026, and Mabuhay!

Prof. Charisma Samparani Ututalum
Keynote Speaker, 3rd ICSIFT-2026

Panel Speaker



Dr. Thelma D. Palaoag
University of the Cordilleras
Vice President for Research, Innovation and Institutional Planning, Philippines

Message

It is my pleasure to welcome you to the 3rd International Conference on Sustainability, Innovation, and Future Technologies (ICSIFT 2026), held on August 21–22, 2026, at Astoria Current, Boracay, Philippines.

As one of this year's panelists, I am honored to join researchers, academicians, innovators, and industry leaders from different countries in advancing our theme, "Sustainable Innovation: Bridging Technology and Environmental Stewardship."

This conference reminds us that innovation must go beyond technological advancement. Whether in artificial intelligence, renewable energy, smart infrastructure, or emerging technologies, our work must also contribute to environmental sustainability, resilience, inclusivity, and meaningful societal impact.

ICSIFT provides an important platform for exchanging ideas, building collaborations, and transforming research into practical solutions. I also commend the organizers for integrating sustainability into the conference itself through its commitment to a carbon-neutral and zero-waste event.

May our discussions over the next two days inspire new partnerships, responsible innovations, and solutions that help build a more sustainable future.

Welcome to ICSIFT 2026. I look forward to an engaging and productive conference with all of you.

Thank you, and mabuhay !

Warm Regards,



Dr. Thelma D. Palaoag
Panel Speaker, 3rd ICSIFT-2026



Dr. Lance Jay Tristeza Montalban
Associate Professor IV
Iloilo Science and Technology University– Miagao Campus, Philippines

Welcome to the 3rd International Conference on Sustainability, Innovation, and Future Technologies (3rd ICSIFT 2026)!

As a panel speaker, I am privileged to join an exceptional group of researchers, industry leaders, and academic pioneers dedicated to leveraging technology and innovation for a sustainable future.

Over the coming days, we will dive into groundbreaking research, exchange diverse perspectives, and explore practical solutions to address our most complex global challenges. The success of a forum like ICSIFT 2026 relies on dynamic dialogue and active collaboration. I encourage everyone to ask probing questions, share insights, and connect deeply across disciplines.

May the ideas and frameworks presented in these sessions inspire new pathways, foster strong partnerships, and drive actionable, lasting solutions. Thank you for being here, and welcome to the conference!

Warm Regards,



Dr. Lance Jay Tristeza Montalban
Panel Speaker, 3rd ICSIFT-2026

Session Chair



Dr. Veronica Sarcino-Almase
Campus Director
Polytechnic University of the Philippines Ragay Campus, Philippines

Welcome to ICSIFT 2026!

It is a privilege to serve as your Session Chair and to welcome this remarkable gathering of researchers, educators, innovators, and industry professionals united by a shared commitment to sustainability and innovation.

As Campus Director of the Polytechnic University of the Philippines (PUP) Ragay Campus, I firmly believe that meaningful change begins when knowledge is shared and ideas are transformed into action. At this conference, we celebrate not only research excellence but also the power of collaboration in creating solutions that benefit our communities and our future.

I encourage everyone to engage openly, learn from one another, and build partnerships that extend beyond this conference.

On behalf of PUP Ragay Campus, I warmly welcome you to ICSIFT 2026. May our time together be productive, inspiring, and filled with opportunities for meaningful Collaboration.

I wish everyone a successful conference and an enjoyable stay in Boracay, Philippines. Maraming salamat po.

Warm Regards,
Dr. Veronica Sarcino-Almase
Session Chair, 3rd ICSIFT-2026

Conference Chair



Dr. Wilson Cordova, LPT, CRS
Associate Professorial Lecturer
De La Salle University, Philippines

Welcome to ICSIFT 2026!

It is my great honor to welcome all distinguished speakers, researchers, and delegates to the 3rd International Conference on Sustainability, Innovation, and Future Technologies (ICSIFT 2026) in Boracay, Philippines.

ICSIFT 2026 brings together global visionaries to explore how emerging technologies can drive meaningful, sustainable solutions. The high-caliber research presented in these proceedings highlights groundbreaking advances in green tech, smart systems, and digital sustainability.

My sincere thanks go to our authors, peer reviewers, and the organizing committee for their hard work and dedication. I hope these proceedings spark valuable insights and lasting collaborations.

I wish everyone a productive and inspiring conference experience!

Warm regards,

Dr. Wilson Cordova, LPT, CRS
Conference Chair,3rd ICSIFT 2026

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3rd International Conference on Sustainability, Innovation and Future Technologies

ABSTRACTS

Using AI and Project-Based Learning to Teach Sustainability in Architecture Education

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Abstract

Addressing global sustainability challenges requires interdisciplinary education that prepares future professionals to engage with environmental issues and communicate solutions across cultural and linguistic boundaries. In architecture and urban planning, students must understand complex sustainability concepts while developing the ability to discuss them in international contexts. This study examines how artificial intelligence (AI)-supported project-based learning can enhance sustainability education in an English course for architecture students.

The study was conducted in a semester-long English Seminar course for architecture majors at a Japanese university. The course incorporated a project-based learning cycle in which students investigated sustainability challenges related to architecture and urban design, including topics such as energy-efficient buildings, urban heat island mitigation, and sustainable city planning. AI tools were integrated at multiple stages of the learning process, including topic exploration, analysis of sustainable building case studies, debate preparation, and stakeholder-based panel discussions.

Through guided activities, students used AI to generate potential research questions related to sustainability, analyze case studies of environmentally innovative buildings, and explore multiple stakeholder perspectives on urban development issues. AI tools also supported language development by helping students understand technical vocabulary and organize ideas for discussions and presentations. To encourage responsible use of AI, students were required to verify AI-generated information using independent sources and produce original written work.

Data were collected through student project assignments, reflective surveys, and written reports documenting AI use. Preliminary findings suggest that AI-supported project-based learning increased student engagement with sustainability topics and improved students' confidence in discussing these issues in English. The study highlights how AI-assisted pedagogy can support educational approaches aligned with the United Nations Sustainable Development Goals while promoting interdisciplinary learning in architecture and language education contexts.

***Keywords**: Architecture Education, Artificial Intelligence in Education, Project-Based Learning, Sustainability Education*

Motivation, Grit, and Reading Behavior: Linking Learner Psychology to Extensive Reading Engagement

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Abstract

Extensive reading programs are widely used in second language education to increase exposure to meaningful input and develop reading fluency. However, students vary greatly in how actively they engage with these programs. While many studies examine program outcomes, fewer studies explore how learner motivation relates to measurable reading behavior over time. This study investigates the relationship between several motivational constructs and students' participation in a year-long extensive reading program.

Participants were first-year Japanese university students enrolled in a required English course using the Xreading digital library. At the beginning of the academic year, students completed a motivation survey measuring multiple dimensions of language learning motivation, including desire to speak English, attitudes toward learning English, motivational intensity, integrativeness, instrumental orientation, willingness to communicate, and grit. The survey used a Likert-scale format adapted from established motivational research instruments.

Student engagement in extensive reading was tracked throughout the academic year using Xreading analytics. Behavioral indicators included total word counts, number of books completed, time spent reading, and reading frequency. These data allow for comparison between self-reported motivational orientations and actual reading behavior over an extended period.

Rather than assuming that motivation uniformly predicts engagement, this study examines how different motivational constructs relate to measurable reading behavior over time. The analysis will explore relationships between survey-based motivational measures and behavioral indicators from the extensive reading platform, including total word counts, number of books completed, time spent reading, and reading frequency. Particular attention will be given to whether persistence-related constructs such as motivational intensity and grit are associated with sustained engagement across the academic year. By comparing psychological measures with longitudinal reading data, the study aims to identify which aspects of motivation may be most strongly linked to actual participation in extensive reading.

This study contributes to ongoing discussions about motivation and extensive reading by combining psychological survey measures with behavioral learning analytics. The findings offer practical insights for instructors designing extensive reading programs and highlight the importance of persistence-related constructs in supporting sustained engagement with language learning tasks.

***Keywords**: Extensive Reading, L2 Motivation, Grit, Learning Analytics, Willingness to Communicate*

Ethics and Policy Challenges in the Digitization of Cultural Heritage

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Abstract

The process of cultural heritage digitization has turned out to be one of the most important strategies for preserving historical artifacts, manuscripts, art pieces, and digital-age intangible traditions. Cultural institutions can preserve heritage resources, capture more, and make them more accessible than ever before through hi-tech technologies such as 3D scanning, artificial intelligence, digital archiving, and cloud data storage. The digitization also increases accessibility among researchers, educators, and the general population, while preserving the cultural materials that are easily prone to damage, natural calamities, and war. Nevertheless, the fast pace of digital heritage projects poses major ethical and policy issues. The problems of intellectual property rights, ownership of cultural artifacts, and the presentation of culturally sensitive materials must be considered. In addition, the issues of community approval and the rights of indigenous people also raise questions about the inclusivity and cultural sensitivity of digitization activities. International and national policy and legal frameworks are also very important for regulating the preservation of digital heritage, especially in areas such as copyright, licensing, and cross-border data sharing.

Keywords: *cultural heritage digitization, digital preservation, ethics in digital archives*

Uncertainty-Aware, Decision-Driven Methane Risk Forecasting For Air Quality Monitoring – A System Development

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Abstract

Methane (CH_4) emissions in landfill environments pose significant environmental and public health risks, particularly in rapidly urbanizing municipalities. This study aims to develop a portable, real-time environmental monitoring system and an intelligent decision-support mechanism for methane risk assessment. Specifically, the system is designed using MQ-4 and MQ-135 gas sensors, a DHT22 environmental sensor, and an ESP32 microcontroller to continuously capture methane concentration and related environmental parameters.

To improve the accuracy and reliability of methane risk evaluation, the study implements a fuzzy logic-based decision-making algorithm. This approach addresses the inherent uncertainty and variability of low-cost sensor data by utilizing a Fuzzy Inference System (FIS) with defined linguistic variables and membership functions. Instead of relying on fixed thresholds, the system generates interpretable risk classifications LOW, MEDIUM, and HIGH enabling more adaptive and context-aware assessments.

The proposed system follows a multi-layer Internet of Things (IoT) architecture, incorporating cloud-based data storage and a backend processing platform for real-time monitoring and visualization. Preliminary validation results demonstrate strong agreement between the system's risk outputs and expert evaluations, indicating its effectiveness as a reliable and practical tool for methane risk monitoring and decision-making in landfill environments.

***Keywords**: methane monitoring, fuzzy logic, Internet of Things, landfill emissions*

Behavioral Lens: Artificial Intelligence Multimodal Machine Learning-Based Behavioral Assessment System for Learner Readiness Prediction

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Abstract

The increasing reliance on digital and remote assessments has revealed significant limitations in traditional evaluation approaches, which primarily depend on static performance metrics and fail to capture the behavioral and cognitive states of test takers. This creates a critical research gap in understanding learner readiness and engagement in real time. To address this, the study proposes an AI-driven IoT framework for behavioral insight and readiness prediction in assessment environments. The primary objective of this research is to design, implement, and evaluate the INTELLITEST system, an integrated platform that leverages artificial intelligence, computer vision, and IoT technologies to capture, synchronize, and process multimodal behavioral data during assessments. Specifically, the study aims to develop and validate machine learning models capable of real-time behavioral inference and to evaluate the system's effectiveness, usability, and overall quality. Design science research (DSR) was employed, utilizing annotated datasets and live video streams. The framework integrates three core behavioral modules: Eye Aspect Ratio (EAR) for blink pattern detection, Gaze Analysis for eye tracking and attention monitoring, and Face-Touch Detection for identifying behavioral cues associated with stress or uncertainty. Additionally, Facial Emotion Recognition (FER) was implemented using NKF model training to classify affective states. System evaluation was conducted using ISO 25010 software quality standards and the Technology Acceptance Model (TAM). Results indicate that the system effectively detects and classifies behavioral indicators, with improved accuracy achieved through multimodal integration. Significant correlations were observed between behavioral patterns and assessment performance, supporting the system's capability for readiness prediction. This undertaking concluded that INTELLITEST system enhances assessment analytics through integration of real-time behavioral insights as it contributed to practical applications in adaptive learning and intelligent evaluation systems.

Keywords*: Artificial Intelligence, IoT, Behavioral Analytics, INTELLITEST*

Neuralcry: Smart Infant Cry Reason Display with on-Device Machine Learning

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Abstract

Infant crying serves as the primary mode of communication for non-verbal expression of needs and discomforts. Accurately determining the cause of an infant's cry is essential for responsive caregiving and safeguarding infant welfare. Conventional approaches rely heavily on caregivers' subjective interpretation, which often leads to misinterpretation, delayed responses, and increased infant distress. within the edge on-device machine learning have enabled the development of portable, privacy-preserving systems capable of real-time acoustic analysis without cloud dependency. This paper presents the design, development, and evaluation of NeuralCry—a compact, battery-powered smart device that performs infant cry reason classification entirely on-device using quantized deep learning models. The system captures audio signals through a high-fidelity MEMS microphone, processes them through an optimized audio pipeline featuring Fast Fourier Transform (FFT), Short-Time Fourier Transform (STFT), and Mel-Frequency Cepstral Coefficients (MFCC), and classifies cry reasons into five categories: Hunger, Discomfort, Belly Pain, Tired, and Burping. The device utilizes an ESP32-S3 microcontroller with TensorFlow Lite Micro runtime, achieving real-time inference within 43 milliseconds at a power consumption of 12mW. The dataset comprises approximately 850 infant cry recordings collected from ICSD: An open-source dataset for infant cry, Liu, Q., Song, L., Xu, D., & Long, Y. (2024) and 150 from barangays within the municipalities of Patikul and Jolo, Sulu, Philippines. The Convolutional Neural Network (CNN) model achieved 92.5% macro-averaged accuracy after INT8 quantization, with minimal accuracy degradation of 1.2%. User acceptance testing involving 100 participants yielded an overall mean score of 4.714 (Strongly Agree) across ten evaluation criteria, indicating strong satisfaction with device usability, accuracy, responsiveness, and privacy features. The NeuralCry system represents a significant advancement in edge AI for healthcare, providing caregivers with an objective, immediate, and privacy-respecting tool for infant care.

Keywords: *On-Device Machine Learning, TensorFlow Lite Micro, ESP32-S3, CNN, Mel-Spectrogram*

Determinants of Waste Segregation in Geographically Isolated Communities: A PRISMA Review

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Abstract

One of the most critical environmental and population health concerns, particularly in the resource-deprived and geographically isolated communities, is solid waste management. The aim of this work is to discover the most significant determinants of waste segregation and to examine the relationship between these determinants in this setting. The systematic review was conducted in PRISMA using Scopus, ScienceDirect, and Google Scholar databases, and the studies published in empirical research in 2010-2024 were included. A total of one hundred and sixty-six records were identified and 34 studies were chosen according to the inclusion criteria and included in the final synthesis.

The findings suggest that the dynamic process of interaction between behavioral, institutional, technological, and socio-cultural determinants influence waste segregation behavior. Behavioral factors such as attitudes, subjective norms, and perceived behavioral control have a great impact on individual intentions. However, these plans are not necessarily implemented due to structural constraints. Institutional barriers like poor governance, poor enforcement of policies and poor infrastructure were among the key ones. Technological-based interventions prove to show a potential to increase efficiency, but cannot be applicable in the low-resource setting. The supportive factors are the social cultural forces such as the social norms and community involvement which do not suffice unless supported by the institutions.

The analysis implies that there is a disparity between the level of environmental awareness and the behavioral practices of segregating wastes considering the fact that the information is not adequate to translate to behavior. In the contextual scenario, which is founded on Jolo, Sulu the findings reveal that this disparity is added by geographic isolation, infrastructural limitations and governance problems. The research has put forward a multi-dimensional model, which incorporates these determinants and the importance of context-based system-level interventions. The results can bridge the gap between the empirical data on the international level and the local level, and contribute to policy-related data on how the situation with waste segregation in geographically isolated communities can be improved.

Keywords*: waste segregation; solid waste management; PRISMA; Geographically isolated communities, sustainability*

Exploring The Generational Gap Between Fathers and their Children in Jolo, Sulu

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Abstract

This study explores the generational gap between fathers and their children in Jolo, Sulu, focusing on the practices that manifest this gap, the factors contributing to it, strategies for bridging the gap, and social work interventions to harmonize father child relationships. The significance of this research lies in its contribution to understanding how traditional Islamic and Tausug cultural values intersect with contemporary social changes, providing insights into the dynamics of intergenerational relationships within this unique cultural context.

Utilizing a qualitative research design, the study involved in-depth interviews with ten fathers from five barangays (Alat, Bus-Bus, Chinese Pier, Takut-Takut, and San Raymundo). Data collection techniques included participant observation and field notes, with thematic analysis employed to identify key themes and patterns in the data.

Key findings reveal that communication practices are central to either bridging or widening the generational gap, with respectful dialogue fostering connection. The study identifies cultural values as resources rather than barriers, highlighting the adaptability of fathers in navigating educational disparities and technological advancements. Additionally, the findings suggest that shared experiences and mutual learning are effective strategies for bridging generational gaps, while community support plays a crucial role in strengthening family relationships.

The results indicate that generational gaps can be transformed into opportunities for growth and learning when approached with cultural wisdom and adaptive flexibility. The study contributes to the field by challenging deficit-based assumptions about traditional families and offering a framework for culturally responsive social work interventions. Limitations include the study's focus on a specific cultural context, suggesting the need for further research to explore similar dynamics in other traditional Muslim communities. Future research directions may include longitudinal studies to assess the long-term effectiveness of proposed interventions and the evolving nature of father-child relationships in changing social landscapes.

Keywords*: Generational gap; Father-child relationship; Tausug culture; Islamic values; Intergenerational relationships; Communication; Social work intervention; Jolo, Sulu.*

On the Frontlines of Faith-Informed Healing: Counselor's Autoethnographic Post-Disaster Psychological Debriefing in Islamic Perspective

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Abstract

This autoethnographic study explores the lived experience of a mental health counselor conducting one on one psychological debriefing with Tausug survivors, bereaved relatives, and family members of missing victims following the sinking of MV Trisha Kerstin 3 in Sulu, Philippines. Grounded in reflective journaling, counseling notes, and contextual observation, the study examines how Islamic beliefs and Tausug cultural values shaped trauma responses, coping, and help seeking behaviors in a post disaster setting. Findings reveal that concepts such as sabr (patience), tawakkul (trust in Allah), and qadar (divine decree) functioned as primary meaning making and emotional regulation frameworks. Despite linguistic and cultural differences, empathic presence and reflexive practice enabled trust building between counselor and survivors. The study highlights the role of indigenous resilience, system constraints, stigma, and counselor emotional labor, reframing psychological debriefing as accompaniment centered care. The findings underscore the importance of culturally responsive, faith informed disaster mental health practices in Muslim, collectivist communities.

Keywords: *Autoethnography; Psychological Debriefing; Disaster Mental Health; Islamic Coping; Tausug Resilience; Faith Informed Healing; Counselor Reflexivity; Cultural Humility*

Life After Loss: A Phenomenological Study on the Emotional, Economic, and Role Transformation Experiences of Bajau Widowed Mothers in Jolo, Sulu"

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Abstract

This phenomenological study explores the lived experiences of widowed mothers in Jolo, Sulu, focusing on their financial and emotional challenges and the coping mechanisms they employ in navigating widowhood. Using purposive sampling, five widowed mothers from selected communities in Jolo were interviewed. Data were collected through semi-structured, in-depth interviews, recorded, transcribed, and analyzed thematically following Braun and Clarke's framework.

The analysis revealed two core themes. First, Financial Challenges—participants described persistent economic hardship characterized by unstable and informal sources of income, limited access to livelihood opportunities, and difficulty in meeting basic needs such as food, healthcare, and children's education. The loss of a spouse intensified their responsibilities as sole providers, often forcing them to rely on small-scale or irregular work to sustain their families. Second, Emotional Challenges—widowed mothers experienced profound grief, loneliness, and emotional distress, further compounded by social stigma, discrimination, and isolation within their communities. Despite these burdens, they demonstrated resilience by drawing strength from their children, faith, and community support systems.

Participants identified coping mechanisms rooted in cultural and social practices, including reliance on extended family networks, community kinship, and spiritual faith. Simple acts such as prayer, sharing experiences with others, and engaging in daily routines helped them manage emotional stress and maintain their roles as caregivers and providers.

The study concludes that widowhood is both a condition of vulnerability and resilience. Their experiences highlight the urgent need for culturally responsive interventions, including accessible livelihood programs, psychosocial support services, and inclusive policies that address both financial and emotional well-being. Ultimately, their stories underscore that survival in widowhood is not only an economic struggle but also an emotional journey shaped by strength, faith, and community.

Keywords*: Widowhood; Widowed Mothers; Lived Experiences; Financial Challenges; Emotional Challenges; Coping Mechanisms; Resilience.*

Pedagogical Practices in the General Education Curriculum: Strengthening the Learning Foundations of Social Work Students

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Abstract

This study examined the pedagogical practices employed in the general education (GE) curriculum and their role in strengthening the learning foundations of Social Work students at Sulu State College. Specifically, it investigated dominant teaching strategies, assessed their contribution to students' cognitive, ethical, and social development, explored student and faculty perceptions, and identified pedagogical challenges and areas for enhancement. The study utilized a descriptive mixed-methods research design. Quantitative data were collected through survey questionnaires administered to Social Work students, while qualitative data were gathered through semi-structured interviews with faculty members and focus group discussions with students. Quantitative data were analyzed using descriptive statistics, and qualitative data were subjected to thematic analysis. Findings revealed that faculty members frequently employed student-centered pedagogical practices, particularly collaborative learning, contextualized teaching, interactive discussions, and reflective activities. Quantitative results showed very high levels of learning foundations among Social Work students, notably in critical thinking, communication skills, ethical reasoning, and social awareness. Qualitative findings further indicated that contextualized, interactive, and reflective pedagogies enhanced learning relevance and engagement, while faculty commitment strengthened instructional effectiveness. However, pedagogical inconsistency across courses and the need for continuous faculty development were identified as challenges. Overall, the study concluded that well-aligned and student-centered GE pedagogical practices significantly contribute to strengthening the learning foundations of Social Work students

Keywords*: mixed-methods research, student-centered pedagogy, general education curriculum, learning foundations, Social Work students, thematic analysis*

Fortification and Nutritional Assessment of Squid Seasoning Powder

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Abstract

Micronutrient deficiencies, particularly vitamin A deficiency and iron deficiency anemia, remain persistent global public health concerns that disproportionately affect vulnerable populations. This study developed and evaluated a fortified squid seasoning powder (SSP) as a functional food intervention to address these deficiencies. Anchored in the principles of food fortification, the product was fortified with vitamin A and iron using squid powder as a natural protein source, responding to the increasing demand for healthier flavor enhancers. Aligned with the United Nations SDGs, this study supports SDG 1 (No Poverty), SDG 2 (Zero Hunger), and SDG 12 (Responsible Consumption and Production) by promoting an affordable and practical food innovation designed to combat hidden hunger. The development of this product contributes to improved access to essential micronutrients while encouraging responsible use of marine based resources. Nutritional analysis revealed that the formulated seasoning provides 29 kcal per 10 g serving, with low fat (0.15 g), low carbohydrates (0.46 g), and a protein content of 2.76 g, contributing 6% of the recommended daily intake. Compared with conventional commercial seasoning powders, both local and international, the product demonstrated lower sodium content at 280 mg per serving. Fortification achieved functional relevance, delivering 3.41 mg iron (18% RENI) and 19% RENI for vitamin A, thus considered as a good source of these micronutrients based on Philippine Dietary Reference Intakes standards. Microbiological analysis confirmed product safety. The aerobic plate count (APC) was less than 8.0×10^4 CFU/g, below the acceptable limit of 4.0×10^6 CFU/g. Yeast and mold counts were less than 1.0×10^2 CFU/g, while total coliform count was less than 3.0 CFU/g, indicating compliance with safety standards. Sensory evaluation using a 7-point Hedonic Scale showed high acceptability, with no significant differences between fortified and non-fortified samples. Overall, the fortified SSP is suitable for daily consumption and offers a practical approach to reducing micronutrient deficiencies.

Keywords: *Food Fortification, Functional foods, Squid powder, Vitamin A and Iron Deficiency, Zamboanga City.*

Integrated Smart Library System with IoT and Machine Learning for Curbside Services and Predictive Book Recommendations

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Abstract

This study focused on the design, development, and evaluation of an Integrated Smart Library System for the Calamba Institute Learning Resource Center to improve the efficiency, accessibility, accuracy, and responsiveness of library services. The project aimed to automate major library operations such as acquisition, cataloging, circulation, inventory, user log-in, and report generation, while also introducing a curbside kiosk for remote book returns and a personalized book recommendation feature based on users' borrowing histories. Guided by findings from related studies on self-service kiosks, radio-based identification, and predictive data analysis, the research adopted a developmental approach using iterative stages of planning, design, implementation, hardware integration, testing, and evaluation. The system was developed as a web-based platform supported by radio tag scanning devices, wireless micro-controllers, and a centralized database for real-time monitoring of transactions. Borrowing records were analyzed using pattern-based recommendation techniques to generate suggested library materials that match users' reading interests. Surveys, interviews, and observations involving students, faculty members, library staff, and an information technology evaluator were used to assess the system's performance, usability, and acceptability. Results showed that the developed system successfully reduced manual work, improved the accuracy of circulation and inventory records, minimized delays in routine transactions, and enhanced user convenience through self-service and remote access functions. The curbside return kiosk provided secure and efficient book returns, while the recommendation feature increased the visibility and use of library resources. The study concluded that combining automated library management, connected hardware devices, and intelligent recommendation tools offers a practical, user-friendly, and sustainable solution for modernizing academic library services.

Keywords*: curbside return kiosk,predictive book recommendation, smart library system, user-centered library service.*

Beyond the Shore: Engineering Sustainable Bio-Nori from Sea Grapes (*Caulerpa lentillifera*): Evaluation of Consumer Acceptance and Physiochemical Properties

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Abstract

The escalating demand for sustainable, nutrient-dense marine food products has driven innovation in the aquaculture sector, particularly regarding the utilization of highly perishable local resources. *Caulerpa lentillifera*, commonly known as sea grapes or "lato," is a widely consumed green alga in the Philippines, prized for its rich nutritional profile encompassing dietary fiber, essential vitamins, minerals, and bioactive compounds. However, its broader commercial viability is severely constrained by a short shelf life and rapid post-harvest degradation. This study addresses this limitation by engineering a shelf-stable, value-added bio-nori sheet derived from sea grape biomass, presenting an eco-conscious, locally sourced alternative to traditional, imported *Porphyra*-based nori. Employing an experimental research design, the study developed three distinct formulations of bio-nori sheets based on varying ratios of sea grape biomass and an agar binder: 100% sea grapes, a 50:50 sea grape and agar blend, and a 100% agar control. To comprehensively evaluate consumer acceptance, a sensory panel of 50 participants assessed the formulations using a 7-point hedonic scale, measuring key attributes including color, aroma, texture, taste, and general acceptability. Simultaneously, the sheets underwent rigorous physiochemical and microbiological evaluations to determine moisture content, water activity, sodium levels, and overall product safety. The resulting data were statistically analyzed using Analysis of Variance (ANOVA) to identify significant variations between the treatments. The results demonstrated that formulation ratios directly influenced sensory perception, with taste and flavor exhibiting the most notable fluctuations across the tested attributes. The 50:50 formulation achieved the most balanced consumer acceptability, whereas the 100% sea grape formulation retained the highest baseline nutritional potential. Crucially, the physicochemical evaluation revealed exceptional shelf stability: the engineered bio-nori exhibited a remarkably low moisture content of 0.58% and a water activity level of 0.260—falling significantly below the critical microbial safety threshold of 0.70. Furthermore, this research proves that *Caulerpa lentillifera* can be successfully processed into a highly marketable, sustainable bio-nori sheet. This innovation not only minimizes reliance on imported seaweed products but also empowers coastal communities by transforming a highly perishable local crop into a resilient, high-value commodity. The study concludes that sea grape bio-nori possesses substantial economic potential, actively contributing to food security, sustainable rural

development, and the broader blue economy.

***Keywords**: Bio-Nori, Blue Economy, Consumer Acceptance, Physicochemical Properties, Sea Grapes, Value-Added Product*

Feathering Sustainability: Innovating Biodegradable Packaging from ZAMPEN Native Chicken Feathers

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Abstract

As the demand for eco-friendly and durable packaging materials continues to rise, researchers are increasingly exploring alternative sources, particularly the often-overlooked waste produced by agriculture. This study focused on developing biodegradable packaging boxes made from the feathers of Zampen Native Chicken. By leveraging keratin a biopolymer renowned for its impressive strength and durability, the study aimed to create a sustainable packaging solution. The research involved transforming these feathers into fibers, blending them with natural binders, and molding them into functional boxes. The researchers evaluated various physical and mechanical properties, including longevity, weight capacity, moisture resistance, and biodegradability, comparing them to conventional paper boxes. The findings revealed that feather-based packaging presents a promising alternative to traditional paper products. Mechanical strength and durability tests demonstrated that these innovative boxes maintained excellent structural integrity while supporting substantial weight. Furthermore, the addition of natural binders significantly enhanced moisture resistance, effectively protecting contents from environmental factors. Lastly, biodegradation tests confirmed that the feather packaging decomposes efficiently, making it a more eco-friendly option than many existing materials. In conclusion, utilizing Zampen Native Chicken feathers not only addresses pressing environmental challenges but also opens up new economic opportunities, marking a vital step toward more sustainable packaging practices in the industry.

Keywords: *Biodegradable Box, Sustainable Packaging, ZAMPEN Native Chicken Feathers*

PREDICTAHEALTH: Development and Validation of Supervised Machine Learning Algorithms for Stroke Risk Prediction

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Abstract

Since cerebrovascular disease is one of the primary causes of mortality in the Philippines, stroke continues to be a major worldwide health concern. Risks are increased by inadequate rural healthcare infrastructure, out-of-date data systems, and postponed interventions; prevention is made more difficult by multifactorial factors such as heart disease, hypertension, glucose levels, BMI, and lifestyle choices. Artificial intelligence algorithms can be used for the evaluation and early prediction of those stroke risk factors. However, the challenge lies in determining which algorithm is best to use for prediction if the data source is unbalanced. This is because an unbalanced data source affects the efficiency and reliability of the predictions, leading to an incorrect decision support system. With that, the study aimed to develop and evaluate supervised machine learning models, including Logistic Regression, K-Nearest Neighbors, Decision Tree, Random Forest, Extra Trees, AdaBoost, Gradient Boosting, XGBoost, LightGBM, and CatBoost, in predicting stroke risk levels. Specifically, (a) to collect and validate the data, (b) perform data pre-processing, (c) implement feature engineering, (d) train and build the models, and lastly, (e) to test and evaluate the performance of the models using a confusion matrix and classification report focusing on accuracy, recall, and precision to compare the best model for deployment. The study employed an experimental approach to develop and identify the best model for stroke risk prediction, which involved data preprocessing, feature engineering, training, and model building. Based on a comprehensive evaluation of all implemented supervised machine learning models, the study reveals that CatBoost is the most suitable model for deployment in future stroke risk prediction systems, achieving an accuracy of 89%, a recall of 33%, and a precision of 17%, among other models. It provides a more balanced and operationally feasible solution, maintaining acceptable accuracy while improving minority class detection.

Keywords*: Cerebrovascular Disease, Stroke Risk Factors, Imbalanced Data, Supervised Machine Learning Models, CatBoost Algorithm*

Bridging Theory and Practice: A Study on Innovative Teaching Strategies and Clinical Competence of Nursing Students at Sulustate College

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Abstract

This study examined the relationship between innovative teaching strategies and the clinical competence of nursing students at Sulu State College, Jolo, Sulu. It focused on four instructional domains: technology-enhanced learning, student-centered approaches, experiential learning, and assessment for learning. Using a descriptive-quantitative research design, the study involved 100 nursing students selected through quota sampling from first- to fourth-year levels during Academic Year 2024–2025. Data were gathered through a validated questionnaire measuring students' perceptions of teaching strategies and their level of clinical competence in terms of technical skills, clinical judgment, and interpersonal skills. Weighted mean, standard deviation, t-test, analysis of variance, and Pearson product-moment correlation were used to analyze the data. Findings showed that all four innovative teaching strategies were utilized, with students generally rating technology-enhanced learning, student-centered approaches, experiential learning, and assessment for learning as "Agree." The level of clinical competence among nursing students was rated as "High Competence" across technical skills, clinical judgment, and interpersonal skills. Statistical analysis further revealed no significant difference in the impact of the teaching strategies on students' clinical competence across the measured domains. However, significant positive correlations were found between innovative teaching strategies and clinical competence, indicating that greater exposure to active, technology-supported, experiential, and feedback-oriented learning was associated with higher levels of clinical preparedness. The results suggest that innovative teaching strategies contribute meaningfully to strengthening students' readiness for clinical practice, particularly in a resource-constrained educational setting. The study recommends targeted improvement in technological integration, stronger clinical partnerships, expanded student-centered learning activities, and more diversified assessment practices to enhance nursing education and clinical competence development at Sulu State College.

Keywords: *Innovative teaching strategies; clinical competence; nursing students; technology-enhanced learning; experiential learning; student-centered approaches; descriptive-quantitative design.*

Development and Quality Acceptability of Hotdog Made

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Abstract

This study aimed to focused on the development and quality evaluation of hotdog made from Zampen native chicken (ZNC) meat as an alternative to conventional processed meat products. The research aimed to assess the product's sensory attributes, nutritional value, and overall acceptability among consumers. Specifically, it evaluated the hotdog in terms of appearance, aroma, texture, flavor, and general acceptability using a structured sensory evaluation conducted by selected panelists. The formulation process involved the use of Zampen native chicken meat, with ZNC meat tested to be high in protein and low in fat compared with commercial chicken, combined with standard ingredients such as extenders, binders, and seasonings to achieve a desirable hotdog texture and taste. Laboratory analysis was conducted to determine key nutritional components, including Salmonella, pH and water activity. The results showed that the developed hotdog had a favorable nutritional profile, with negative Salmonella content and has balanced pH level of 6. Sensory evaluation using a 7-point hedonic scale indicated that the product achieved a moderate level of acceptability, with an overall mean score of 6 ("like moderately"). Texture and flavor were the primary attributes influencing consumer preference. Minor improvements in seasoning and consistency were suggested to further enhance product quality. Overall, the findings indicate that Zampen native chicken meat is a viable raw material for hotdog production. The developed product not only meets acceptable quality standards but also offers a healthier and locally sourced alternative, supporting both food innovation and sustainable utilization of native chicken resources.

Keywords: *ZamPen Native Chicken, Hotdogs, Sensory Attributes, Zamboanga City.*

Automated Coffee Drying System with Integrated Particle Filtration for Enhanced Small-scale Post-harvest Thermal Processing

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Abstract

This study developed and evaluated an automated coffee cherry drying system featuring an integrated dust removal mechanism to address the labor-intensive and weather-dependent limitations of traditional sun-drying for small-scale farmers. The objective was to enhance drying consistency and reduce manual intervention through precise automation.

The prototype was engineered using an ESP32-CAM microcontroller, a digital thermostat, a heating element, and a blower. A specialized intermittent agitation mechanism was incorporated to ensure uniform thermal distribution. Employing a mixed-method research design, the system was evaluated for thermal stability, drying efficiency, and labor requirements. The quality of the processed cherries was validated using traditional metrics, including the bite test and the shake-and-rattle method.

Results indicated high operational efficiency, with the drying chamber reaching its target temperature in 14.46 minutes and maintaining stable thermal conditions. Coffee cherries subjected to 3 days of pre-air-drying followed by 5 hours of machine drying met all traditional standards for storage and marketability. Furthermore, statistical analysis confirmed a significant improvement over traditional methods ($p = 0.0429$), effectively shortening processing time and reducing manual labor.

The findings demonstrate that this automated system provides a practical, high-quality alternative to traditional sun-drying. By improving post-harvest consistency and quality, the system offers a scalable solution for small-scale farmers to enhance their market competitiveness and operational sustainability.

Keywords*: Automated Drying System, Coffee Post-Harvesting, Small-Scale Farming*

Mandatory Wearing of Filipiniana and Asian-Inspired Monday Office Uniforms and Its Contribution on the Growth of the Fiber and Clothing Industry in South Central Mindanao, Philippines

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Abstract

Patriotism and support for domestic products shape a nation's cultural and economic identity. This study evaluates the implementation of Civil Service Commission Memorandum Circular No. 16, s. 2024 (effective December 8, 2024), mandating ASEAN-inspired attire on the first Monday and Filipiniana-inspired outfits from indigenous fabrics on subsequent Mondays for all government employees. The research assessed (1) stakeholder perceptions among government employees and pre-service teachers, (2) alignment with Republic Act No. 9242 (Philippine Tropical Fabrics Law), and (3) implications for academic institutions. An online survey via Google Forms was administered to pre-service teachers, government employees, and elected officials in South Central Mindanao. Descriptive statistics analyzed the data. Respondents were predominantly elected officials with equal gender representation. All expressed pride in wearing Filipiniana attire and generally supported the policy; however, improvements were requested. A significant majority preferred digitally printed tribal designs over traditional weaves. T'boli cloth (T'nalak) was the top choice for fabric accents. Participants recommended integrating dressmaking and indigenous fiber studies into academic curricula to enhance local fabric utilization. Findings indicate the policy successfully fosters cultural pride and supports RA 9242 objectives. However, long-term sustainability requires addressing design preferences (particularly demand for digitally printed indigenous motifs) and strengthening educational programs in indigenous fiber production. These insights offer critical recommendations for policy refinement to support South Central Mindanao's fiber and clothing industry.

Keywords: *Filipiniana attire, ASEAN-inspired uniforms, CSC MC No. 16, Philippine Tropical Fabrics Law, indigenous textiles, T'nalak, South Central Mindanao*

Evaluating *Caulerpa lentillifera* as a Marine-Derived Biofertilizer for Radish (*Raphanus sativus*): Effects on Growth and Yield

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Abstract

The shift toward environmentally sustainable farming systems has encouraged the investigation of alternative nutrient sources, including marine-based biofertilizers. This study assessed the effectiveness of Caulerpa lentillifera as a biofertilizer and its influence on the growth and productivity of radish (Raphanus sativus) under field conditions. The experiment was carried out at Sulu State University, Philippines, from October to December 2025 using a Randomized Complete Block Design with three treatments and three replications. The treatments included an unfertilized control and two application levels of sea grape extract.

Plant growth indicators such as height, leaf number, and leaf size were monitored throughout the growing period, while yield components including root length, diameter, fresh weight, and total yield were measured at harvest. The results indicated that the control treatment exhibited the highest average performance, whereas the treatments receiving biofertilizer showed comparatively lower values. Statistical evaluation using analysis of variance revealed no significant differences among treatments ($F = 0.597$, $p = 0.580$).

The lack of measurable response may be linked to factors such as limited nutrient availability, non-uniform formulation, and the method of application, which may have restricted nutrient uptake efficiency. Nonetheless, C. lentillifera possesses characteristics that support its potential as an organic input. Further investigation is necessary to refine application strategies and optimize its use in sustainable crop production.

Keywords: *Biofertilizer; Caulerpa lentillifera; Radish (Raphanus sativus); Marine algae; Sustainable agriculture*

Utilization of Aerial Terrain Mapping Using Unmanned Aerial Vehicle for Watershed and Forest Rehabilitation Planning

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Abstract

This study demonstrated the use of Unmanned Aerial Vehicles (UAVs) and photogrammetry to produce baseline watershed imagery and support forest rehabilitation planning in the Kaliwa Watershed Area of Brgy. Mamuyao, Tanay, Rizal, Philippines. A geospatial survey was conducted using a DJI Mavic 3 Enterprise drone, capturing 1,411 high-resolution images across more than 1.2 million square meters. These images were processed using Agisoft Metashape to generate orthomosaics and Digital Elevation Models (DEMs) for terrain, slope, and land cover analysis. The assessment focused on Parcel 3, a 108.92-hectare region characterized as a secondary forest and tropical semi-evergreen rainforest. Land cover analysis revealed that 31% (34.024 hectares) of this parcel is barren, while 69% (74.948 hectares) remains vegetated. The generated DEMs and orthophotos identified precise terrain profiles and exposed soil areas. Ultimately, this high-resolution spatial mapping delivered critical baseline data to prioritize reforestation efforts and ensure the long-term ecological sustainability of the watershed.

Keywords: *Agisoft Metashape, Drones, Ecological Sustainability, Geospatial Analysis, Land Cover Analysis, Spatial Mapping, Tanay Philippines*

A Computer Vision-Based Decision Framework for River Waste Collection

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Abstract

River pollution produced by floating solid waste is one of the global environments and public health challenges, particularly in the urban waterways. This study A Computer Vision-Based Decision Framework for River Waste Collection was developed to address this concern especially in Barangay San Juan, Calamba City, Laguna. The system was designed to collect, classify and segregate from biodegradable to non-biodegradable all collected waste from the river. The system is a supported by a solar panel-powered system; It integrates computer vision, internet of things, and cloud-based technologies. The object detection model was trained using YOLOv11, it is a real-time computer vision model algorithm optimized for real time detection, utilizing Ultralytics' based implementation in the Visual Studio environment. A Raspberry Pi was also used for image processing and sensor integration, while a MariaDB cloud-based database enabled data storage, synchronization, and retrieval. The YOLOv11 model achieved 96.7% precision, 91.9% recall, 89.3% F1-score, and 94.7 mAP@50, demonstrating high accuracy. The system was evaluated by the respondents using ISO 25010 based questionnaire. The evaluation shows the overall weighted mean of 3.81, interpreted as Strongly Agree, it signifies high acceptability in terms of functional suitability, performance efficiency, compatibility, usability and safety.

Keywords: *YOLOv11, River Waste Collection and Segregation, IoT, Computer Vision*

Germination IQ: Iot-Based System for Real-Time Germination Forecasting

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Abstract

Germination of seeds plays a vital role in agricultural operations that demand constant observation of environmental factors. Existing practices involve manual observation, which may take up considerable amounts of time and introduce human errors. This paper discusses the design and implementation of GerminationIQ, an IoT system for real-time germination forecasting by means of using environmental sensors, computer vision, and machine learning techniques. To be more precise, the proposed solution employs the following: environmental sensors for data gathering; YOLOv8 for automatic germination recognition; and a Random Forest model for germination forecasting. Experiments resulted in 78.57% of germination rate, YOLOv8 detection accuracy of 88.62%, and forecasting accuracy of 83.33%. System evaluation carried out based on the ISO/IEC 25010 criteria and TAM revealed mean scores of 3.61 and 3.66, respectively.

Keywords*: Basil Seed Germination, Germination Forecasting, Internet of Things (IoT), Smart Agriculture.*

Mandatory Wearing of Filipiniana and Asian-Inspired Monday Office Uniforms and Its Contribution on the Growth of the Fiber and Clothing Industry in South Central Mindanao, Philippines

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Abstract

Patriotism and support for domestic products shape a nation's cultural and economic identity. This study evaluates the implementation of Civil Service Commission Memorandum Circular No. 16, s. 2024 (effective December 8, 2024), mandating ASEAN-inspired attire on the first Monday and Filipiniana-inspired outfits from indigenous fabrics on subsequent Mondays for all government employees. The research assessed (1) stakeholder perceptions among government employees and pre-service teachers, (2) alignment with Republic Act No. 9242 (Philippine Tropical Fabrics Law), and (3) implications for academic institutions. An online survey via Google Forms was administered to pre-service teachers, government employees, and elected officials in South Central Mindanao. Descriptive statistics analyzed the data. Respondents were predominantly elected officials with equal gender representation. All expressed pride in wearing Filipiniana attire and generally supported the policy; however, improvements were requested. A significant majority preferred digitally printed tribal designs over traditional weaves. T'boli cloth (T'nalak) was the top choice for fabric accents. Participants recommended integrating dressmaking and indigenous fiber studies into academic curricula to enhance local fabric utilization. Findings indicate the policy successfully fosters cultural pride and supports RA 9242 objectives. However, long-term sustainability requires addressing design preferences (particularly demand for digitally printed indigenous motifs) and strengthening educational programs in indigenous fiber production. These insights offer critical recommendations for policy refinement to support South Central Mindanao's fiber and clothing industry.

Keywords: *Filipiniana attire, ASEAN-inspired uniforms, CSC MC No. 16, Philippine Tropical Fabrics Law, indigenous textiles, T'nalak, South Central Mindanao*

Institutional and Social Dimensions of Agricultural Extension in Post-Conflict Communities: Evidence from Project HANGAD HULAT in Patikul, Sulu

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Abstract

This study examines the role of agricultural extension as a mechanism for livelihood recovery and community resilience in post-conflict settings, using Project HANGAD HULAT implemented in Patikul, Sulu, Philippines, as a case study. Anchored in development sociology, the research integrates institutional theory, social capital, gender and development perspectives, and contextualized modernization frameworks to analyze how extension interventions contribute to sustainable agricultural outcomes.

The project, funded through the Commission on Higher Education (CHED), established a university-led nursery and demonstration farm that served as a platform for participatory training, technology transfer, and community engagement. Data were drawn from program implementation records and survey responses from 101 farmer-beneficiaries across ten Balik Barangay communities.

Findings reveal that livelihood improvements and increased agricultural participation were not solely driven by technical inputs but were significantly shaped by institutional coordination, trust-building, and inclusive participation. The study highlights the critical role of higher education institutions as intermediaries that facilitate knowledge exchange, strengthen local capacities, and sustain development initiatives. Furthermore, results indicate that social capital—manifested through strengthened networks, cooperation, and community engagement—enhanced technology adoption and resilience. Gender analysis suggests that structural barriers continue to limit women's full participation, underscoring the need for gender-responsive extension strategies.

The study concludes that agricultural development in fragile contexts requires an integrated approach combining institutional support, participatory processes, and socially embedded innovation.

Keywords: *Agricultural extension; Post-conflict development; Social capital; Institutional development; Gender and development; Participatory approach; Climate-resilient agriculture; Philippines*

Occupational Health Problems, Health Safety Practices, and Management among Piña Fiber Handloom Weavers in the Province of Aklan

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Abstract

Despite the cultural and economic significance of piña fiber handloom weaving in the Philippines, limited research exists on the occupational health and safety conditions faced by weavers. This study aims to address this gap by assessing and analyzing the health problems, safety practices, and management strategies among piña weavers in Aklan, Philippines, recognized with the Certificate of UNESCO Inscription to the Representative List of Intangible Cultural Heritage for Humanity. Using a mixed-methods design, high-dimensional quantitative data were collected through structured surveys, complemented by in-depth interviews. Unsupervised machine learning techniques, such as principal components analysis (PCA) and factor analysis on mixed data (FAMD), were used to resolve the high dimensionality of the survey data. Descriptive statistics, statistical tests, and multiple linear regression were employed to examine the relationship between sociodemographic, lifestyle, and workplace factors and the prevalence of health issues, and thematic analysis to highlight major themes and critical issues in the industry. The results show that poor temperature, ventilation, repetitive tasks, air quality, and lighting were the common workplace concerns of the weavers, contributing to the prevalent health issues—musculoskeletal (especially shoulder strain and lower back pain), vision, neurological, and cardiovascular problems. Multiple linear regression revealed that working conditions, body mass index, age, income, lifestyle habits, and medical history significantly predicted these high prevalences, with temperature, air quality, and ventilation accounting for the highest relative contributions (5.1–32.2%). The models demonstrated strong predictive accuracy, with moderately high adjusted R-squared (42.9-63.1%) and low normalized root mean squared error (nRMSE, 18.5–26.0%) and mean squared error (nMAE, 14.2–19.2%). Furthermore, thematic analysis reveals that weavers face interconnected challenges involving occupational health and physical risks, inadequate formal safety protocols, limited training and upskilling, and the lack of economic security and worker welfare support. Health policy recommendations for the piña fiber handloom weaving industry were formulated based on the results of the quantitative and qualitative analyses. The findings underscore the urgent need for policy development aimed at promoting safe, sustainable, and dignified work

environments in traditional weaving communities, ultimately supporting the preservation of cultural heritage alongside workers' well-being.

Keywords*: piña fiber handloom weaving, occupational health risks, multiple linear regression, unsupervised machine learning*

Predictive Model of The Dropout Intention of Learners in Public High Schools in Valenzuela City

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Abstract

This study generally aimed to develop a predictive model of learners' dropout intention in public high schools in Valenzuela City. A quantitative correlational-predictive research design was employed to examine the relationships between learners' demographic characteristics, dropout-related factor domains, dropout-related risk indicators, and dropout intention levels. Multinomial logistic regression analysis was utilized to develop a predictive model of dropout intention. The study was conducted among public junior high school learners enrolled in Grades 7 to 10 in Valenzuela City during School Year 2025–2026. A total of 4,653 learners participated in the study using the researcher-developed Dropout Intention Assessment Questionnaire (DIAQ)

Findings revealed that age, sex, family strain, academic burnout, negative school pressure, history of academic failure, grade retention experience, chronic absenteeism, working student status, health-related absenteeism, bullying experience, and low parental educational attainment were significant predictors of dropout intention. Among these predictors, academic burnout emerged as the strongest contributor, followed by grade retention experience, working student status, and family strain. The results further showed that learners experiencing academic difficulties, attendance problems, adverse school experiences, and family-related challenges were more likely to exhibit elevated levels of dropout intention. The final multinomial logistic regression model significantly improved prediction compared with the intercept-only model, $\chi^2(48) = 793.809$, $p < .001$, demonstrating that the retained predictors effectively differentiated learners across dropout intention levels

The findings suggest that dropout intention is influenced by a combination of academic, family, school, and personal factors. It is therefore recommended that schools strengthen early warning systems and intervention programs that address academic burnout, attendance concerns, academic progression difficulties, bullying, and family-related challenges. School administrators and education leaders are likewise encouraged to utilize the predictive model as a decision-support tool for identifying learners at risk of disengagement and for developing targeted learner retention initiatives

Keywords*: dropout intention, academic burnout, predictive model, multinomial logistic regression, early warning systems*

Infestation Rate and Intensity of *Amblyoma javanense* in *Manis culionensis* (de Elera, 1915)

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Abstract

Manis culionensis, a critically endangered mammal that is endemic in the Palawan region, is a key species within the ecosystem and it is locally known as the Palawan or Philippine pangolin.Various pangolin species are colonized by *Amblyomma javanense*, a hard-bodied tick and obligate hematophagous ectoparasite. Despite the fact that *Amblyomma* species are highly host-specific for Asian pangolins and that they transmit zoonotic diseases, empirical data on the intensity and tick infestations in *M. culionensis* are inadequate. Purposive, opportunistic, and simple tick collection method was used to identify Palawan pangolin ectoparasites. It investigated intensity and infestation rates and identified the family, genus, and species using simple microscopy and an expert-validated field guide. The ectoparasite that has been confirmed to be present is *Amblyomma javanense*, a member of the Ixodidae family. It is characterized by oval-shaped, dark brown arthropods with four pairs of legs, an inornate scutum and festoons, long pedipalps, a hypostome with three-quarters dentition, small and shallow porose areas in females, and spiracular plates that are long, oval, and have a dorsal prolongation. A total of 268 ticks were collected and examined from 13 Palawan pangolins, all of which were infested at a 100% rate (20.62 ticks per host intensity). Adult males had the most ticks per host (44.2 ticks), while female adults, female juveniles, and male juveniles had significantly less ticks (3.5 to 6.7 ticks). Group-level values varied by sex and life stage, and Mann-Whitney U tests revealed no significant differences in tick counts between sexes ($W = 10.5$, $p = 0.185$) or life stages ($W = 28.5$, $p = 0.238$). Further study is needed to correlate host-specific physiological data with immune responses to comprehend the high parasite load necessary for transdisciplinary scientific conservation and Palawan pangolin population health.

Keywords: *balintong, microorganism, ectoparasite, wildlife trade, prevalence*

Advancing Global Engagement: Evaluating Internationalization Practices Among State Universities and Colleges (Sucs) in Western Mindanao

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Abstract

This study examined the internationalization practices among State Universities and Colleges (SUCs) in Western Mindanao to determine their commitment, level of engagement, effectiveness, perceived benefits, and the challenges they face in aligning with global higher education standards. Employing a mixed-methods approach using an explanatory sequential design, the study first analyzed survey responses from 490 participants, followed by qualitative interviews with 17 key informants to contextualize the data.

Findings revealed that SUCs exhibit a very high commitment to internationalization, particularly in governance and leadership, and maintain "very good" practices in faculty mobility, research collaboration, and strategic planning. However, areas such as student mobility, curriculum internationalization, and social engagement require substantial improvement. Challenges identified include limited financial and human resources, lack of institutional infrastructure, and inconsistent policies. Despite these, stakeholders perceive internationalization as beneficial to academic quality, institutional visibility, and student competitiveness.

The study concludes that while Western Mindanao SUCs are on a progressive path toward internationalization, comprehensive and context-sensitive strategies are needed to address existing gaps. Recommendations include policy reform, capacity building, sustainable funding, and stronger inter-institutional linkages.

Reflecting on these findings, teacher education must incorporate global perspectives and equip future educators with intercultural competencies. This underlines the imperative for teacher education programs to align with international standards to prepare educators for a globally interconnected academic landscape.

Keywords*: Internationalization, Higher Education, SUCs, Teacher Education, Global Competitiveness*

Experimental Investigation on the Use of Demolished Concrete Pavement as Recycled Aggregate in New Concrete Pavement

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Abstract

The growing demand for sustainable infrastructure has encouraged the exploration of alternative construction materials that reduce waste and conserve natural resources. This study presents an experimental investigation on the use of demolished concrete pavement as recycled aggregate in the production of new concrete pavement. Recycled coarse aggregate (RCA) and recycled fine aggregate (RFA) were used at different replacement levels to evaluate their effects on compressive strength. A control mix with 0% replacement was compared with RCA-only, RFA-only, and combined RCA–RFA mixtures. Compressive strength tests were conducted at curing ages of 7, 14, and 28 days. The results showed that compressive strength generally increased with curing time for all mixtures. Among the replacement types, RCA-only mixtures demonstrated the most favorable performance, with the 100% RCA mix achieving the highest compressive strength at 28 days, exceeding that of the control mix. In contrast, RFA-only mixtures showed lower strength values, particularly at higher replacement levels, indicating that recycled fine aggregates had a less favorable effect on concrete performance. Combined RCA–RFA mixtures produced moderate results, with some replacement combinations yielding strengths comparable to or slightly higher than the control at 28 days. The findings confirm that demolished concrete pavement can be effectively reused in new concrete pavement, particularly as recycled coarse aggregate. This approach supports sustainability by minimizing construction and demolition waste, reducing dependence on natural aggregates, and promoting resource-efficient pavement construction. The study highlights the potential of recycled concrete materials as an innovative and practical solution for future-ready infrastructure development aligned with the goals of sustainability and technological advancement.

***Keywords**: Concrete pavement, Compressive strength, Demolished concrete pavement, Recycled concrete aggregate, sustainable construction*

Green Entrepreneurship as A Critical Pathway for Addressing Environmental Challenges While Fostering Economic Development and Job Creation in South Africa: A Literature Review

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Abstract

Green entrepreneurship has emerged as a critical pathway for addressing environmental challenges while fostering economic development, particularly in developing economies such as South Africa. This study provides a comprehensive literature review on the status of green entrepreneurship in South Africa, focusing on key trends, opportunities, and challenges shaping its development. The review draws on recent scholarly and policy-oriented sources to synthesise existing knowledge on environmentally sustainable business practices within the South African context.

The findings indicate that green entrepreneurship in South Africa is gaining momentum, driven by increased environmental awareness, policy support, and the transition towards a green economy. Opportunities are evident in sectors such as renewable energy, sustainable agriculture, waste management, and the circular economy, where entrepreneurs are innovating to address pressing environmental issues while creating economic value . Furthermore, government initiatives and institutional frameworks have been established to promote environmentally responsible entrepreneurship and support sustainable business practices .

However, the literature also highlights significant barriers constraining the growth of green entrepreneurship. These include limited access to finance, inadequate technological capabilities, weak institutional support, regulatory challenges, and low market demand for green products and services . Additional constraints such as bureaucratic inefficiencies, skills shortages, and infrastructural limitations further impede entrepreneurial activity in the green sector . Despite these challenges, green entrepreneurship remains a promising avenue for advancing sustainable development and addressing socio-economic issues such as unemployment.

The study concludes that while South Africa has made notable progress in promoting green entrepreneurship, there is a need for stronger policy implementation, improved access to funding, and enhanced capacity-building initiatives. Future research should focus on empirical studies that evaluate the impact of green entrepreneurial initiatives and explore context-specific strategies to strengthen the sector.

Keywords*: Green entrepreneurship, sustainable development, unemployment, economic development*

Flood Frequency Analysis of Hira-an River in Carigara, Leyte Using Gumbel Distribution

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Abstract

Flooding remains one of the most significant natural hazards affecting riverine communities, particularly in typhoon-prone regions such as Leyte, Philippines. This study presents a flood frequency analysis of the Hira-an River in Carigara, Leyte, using the Gumbel distribution to estimate extreme discharge events and support flood prediction modeling. Mean annual discharge data from 1986 to 2018 were obtained from the Department of Public Works and Highways (DPWH) streamflow monitoring database. The Gumbel distribution was applied to model the probability of extreme flood occurrences and to estimate discharge values corresponding to various return periods. Results show a strong agreement between observed and predicted discharges, with a coefficient of determination (R^2) of 0.9842, indicating a high level of correlation and reliability of the model. The developed relationship demonstrates the increasing trend of discharge with longer return periods, providing a quantitative basis for predicting flood magnitudes. Flood frequency analysis is essential for understanding the behavior of extreme hydrologic events and plays a critical role in infrastructure design, floodplain management, and disaster risk reduction. In the context of Leyte, where severe flooding has become more frequent following major typhoons such as Typhoon Yolanda (Haiyan), predictive modeling is vital for improving preparedness and resilience of local communities. The findings of this study provide valuable insights for engineers, planners, and policymakers in designing flood control structures, establishing early warning systems, and implementing sustainable watershed management strategies. Overall, the application of the Gumbel distribution proves to be an effective tool for flood prediction and risk assessment in the Hira-an River basin.

Keywords: *Discharge Prediction, Flood Frequency Analysis, Gumbel Distribution, Hira-an River, Flood Risk Assessment*

Judicial Commissions of Enquiry and their Impact in Deconstructing Public Procurement Dilemmas in South Africa

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Abstract

This article critically examines the role of Judicial Commissions of Enquiry in deconstructing persistent dilemmas within South Africa's public procurement system. Public procurement, as a strategic lever for socio-economic development and service delivery, is frequently constrained by complex dilemmas. These dilemmas are often embedded within institutional practices and governance frameworks, rendering them difficult to resolve through conventional administrative reforms.

Employing a qualitative, document-based research approach, the article analyses selected commission reports, testimonies, and evidentiary narratives to explore how such inquiries contribute to unpacking and reframing procurement dilemmas. The study conceptualises "deconstruction" as a process of critically exposing the structural, political, and administrative contradictions that shape procurement outcomes. It argues that commissions serve not only as accountability mechanisms but also as knowledge-generating institutions that reveal the interplay between regulatory frameworks, institutional capacity constraints, and networks of influence.

The findings indicate that Judicial Commissions of Enquiry have been instrumental in surfacing systemic irregularities, governance failures, and ethical breaches that sustain procurement dilemmas. However, their impact is mitigated by challenges related to the implementation of recommendations, limited prosecutorial follow-through, and institutional resistance to reform. As such, the transformative potential of these commissions remains contingent upon the extent to which their findings are translated into enforceable policy and administrative change.

The article contributes to ongoing scholarly debates on public sector governance by positioning Judicial Commissions of Enquiry as both diagnostic and discursive tools in addressing procurement dilemmas. It concludes by advocating for a more cohesive governance approach that integrates inquiry outcomes into procurement reform strategies, thereby enhancing accountability, efficiency, and public trust in South Africa's procurement systems.

Keywords: *Public procurement, Dilemmas, Judicial Commission of Enquiry*

Work-Life Balance, Trust in Management, and Self-Efficacy as Predictors of Job Satisfaction and Retention Intention of Contract of Service Employees at Aklan State University

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Abstract

This study examined work-life balance, trust in management, and self-efficacy as predictors of job satisfaction and retention intention among 129 Contract of Service (COS) employees across the five campuses of Aklan State University. It described respondents' demographic profile and assessed levels of the key variables, as well as their relationships using path analysis. Results showed that most respondents were relatively new in service and primarily assigned to the main campus. All variables registered high levels, indicating positive perceptions of organizational support and personal capability. Significant positive relationships were found among work-life balance, trust in management, self-efficacy, job satisfaction, and retention intention. Path analysis revealed that trust in management and self-efficacy significantly predicted job satisfaction, while job satisfaction was the strongest direct predictor of retention intention. Work-life balance also contributed indirectly to retention intention through job satisfaction. These findings highlight the central role of job satisfaction in shaping retention intention, supported by both organizational and individual factors. Strengthening trust in management, promoting work-life balance, and enhancing self-efficacy are essential strategies for improving employee retention and sustaining institutional stability.

Keywords: *contract of service employees, work-life balance, trust in management, self-efficacy, job satisfaction, retention intention, path analysis*

The Influence of Technology Adoption on the Level of Financial Literacy Among 4ps Beneficiaries in One Municipality of Misamis Oriental

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Abstract

This study examined the influence of technology adoption on financial literacy among Pantawid Pamilyang Pilipino Program (4Ps) beneficiaries in a municipality in Misamis Oriental, Philippines. Utilizing a descriptive-correlational quantitative design, 150 respondents were surveyed with a validated questionnaire assessing technology use and financial literacy, including knowledge, behavior, and attitude. Results indicated a "Low" overall level of technology adoption (mean = 2.21), with beneficiaries reporting frequent access and basic use of digital tools but substantial gaps in digital skills and openness to innovation. Financial literacy was rated as "Good" (mean = 3.11), reflecting sound knowledge and positive attitudes but less consistent behaviors. Regression analysis revealed a significant positive influence of technology adoption on financial literacy ($\beta = 0.52$, $p < 0.001$), with technology explaining 31% of the variance in financial literacy scores. These findings highlight the need for community-based digital literacy and financial management training, peer support, and targeted interventions to build digital confidence and practical skills. The proposed "Digital Bayanihan" extension project recommends barangay-level training and a digital navigator program to empower beneficiaries. Strengthening technology adoption—beyond mere access—can drive more sustainable financial resilience and poverty alleviation among 4Ps families.

Keywords: *Digital Skills, Innovation, Poverty, Sustainability, Beneficiaries*

Common Crime Charged for Persons Deprived of Liberty in The Bureau of Jail Management and Penology of Eastern Samar

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Abstract

This study examines the prevalent criminal charges against Persons Deprived of Liberty (PDLs) in Eastern Samar and their possible links to socio-demographic characteristics. Utilizing a descriptive-correlational research design, the researchers surveyed 110 PDLs from three Bureau of Jail Management and Penology facilities in Eastern Samar. Data were collected via a structured questionnaire covering respondents' profiles, criminal history, current charges, and perceptions of crime prevention programs. Descriptive statistics and inferential tests (including chi-square analyses) were employed to summarize trends and detect any significant associations. The findings reveal that the PDL population is predominantly male (≈91%) and in early mid-adulthood, with 30–39 year-olds comprising the largest age group. Most have a high school level education and were engaged in farming or laborer occupations prior to detention, indicating a lower socio-economic background. Violent crimes emerged as the most common charges: murder was the leading specific offense (about 21% of respondents), followed by rape (15.5%). Together, these violent crimes account for over one-third of the cases. Property crimes such as robbery (13.6%) and theft (7.3%) are also prominent, constituting roughly one-fifth of charges. A notable share of PDLs (5.5%) were charged with illegal logging, reflecting the significance of special law violations in the region. Statistical analyses found no significant correlation between demographic factors (age, education, occupation) and the type of crime charged, suggesting that these offenses cut across different PDL profiles. The study underscores the need for targeted policy and programmatic responses. These include age-tailored interventions, vocational and educational support, livelihood development, and community-based initiatives addressing root causes such as poverty and low educational attainment. Strengthening environmental protections and providing alternative livelihood options are also recommended to address environmental crimes. The findings provide valuable evidence for law enforcement, policymakers, and rehabilitation programs aimed at improving public safety and supporting the reintegration of PDLs into society.

Keywords: *persons deprived of liberty, Bureau of Jail Management and Penology, socio-demographic profile, common crimes, Eastern Samar, crime prevention strategies*

Consumer Acceptance of Mycelium Packaging in the Cordillera Administrative Region: An Extended TAM Approach

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Abstract

The global crisis of synthetic polymer and polystyrene pollution has catalyzed a structural paradigm shift toward bio-fabricated, transient packaging alternatives. Mycelium-based packaging, grown from agricultural byproducts bound by natural fungal root networks, represents a promising zero-waste solution to mitigate massive solid waste accumulation. Despite its environmental benefits, widespread market adoption remains constrained by consumer perceptions regarding bio-material aesthetics, biological scents, and functional reliability. This study investigates the critical factors influencing consumer acceptance of mycelium-based biodegradable packaging in the Cordillera Administrative Region (CAR), Philippines. The region features high agricultural output but suffers from significant post-harvest logistics losses and lack of sustainable local packaging alternatives. Utilizing a quantitative descriptive-correlational research design, the study adapts the classic Technology Acceptance Model (TAM) by integrating context-specific constructs: Sensory Aesthetics and Perceived Functional Durability. Primary data will be gathered from a sample of consumers, tourists, and agribusiness owners in key regional hubs like Baguio City and La Trinidad, Benguet (N = 150). Data collection will be executed through a structured survey instrument utilizing a 5-point Likert scale. Descriptive statistics will profile the respondents and assess their baseline perceptions. Inferential analysis, specifically multiple linear regression, will evaluate the predictive relationships between the extended TAM perceptual constructs (Perceived Usefulness, Perceived Ease of Use, Sensory Aesthetics, Perceived Functional Durability) and the dependent variable, Behavioral Intention to purchase mycelium-packaged goods. Independent samples t-tests and Analysis of Variance (ANOVA) will determine if significant differences in consumer acceptance exist across diverse socio-demographic profiles. Ultimately, the findings will provide crucial market-readiness insights and empirical data to help local agribusinesses, packaging designers, and environmental policymakers transition toward sustainable logistics and circular agricultural economies in the highlands.

Keywords: *Mycelium packaging, Technology Acceptance Model (TAM), Cordillera Administrative Region (CAR), Biodegradable packaging, Consumer acceptance*

Estimation of Solid Waste Generation and Characterization in Eastern Samar State University Can-Avid Campus for Sustainable Solid Waste Management

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Abstract

The Eastern Samar State University (ESSU) Can-avid Campus faces escalating solid waste challenges due to rising student numbers, despite guidelines already being in place. This research emphasized the urgent need for collaborative efforts to ensure a cleaner, more sustainable campus environment and to protect public health. Utilizing a structured descriptive survey instrument, this study evaluated the demographic parameters, waste composition types, and routine management dynamics of N = 809 student respondents across multiple colleges. The waste characterization analysis of student residences and campus facilities reveals an estimated baseline per capita daily generation rate of 0.986 kg/cap/day. Furthermore, diverse waste management practices and a critical lack of proper segregation, observed in 72.8% of cases, underscore the immediate need for administrative interventions. Distribution profiles across the cohort indicate that structural limitations significantly hinder compliance; specifically, 58.0% of respondents identified insufficient disposal bins or physical facilities, while 53.6% reported a total absence of functional composting or recycling facilities on site. These empirical findings offer essential guidance for sustainable waste management frameworks and inform institutional policy formulations for effective implementation across the university's departments.

Keywords: *solid waste generation, solid waste characterization, waste management*

Development of Composite Cakes from Taro and Lesser Yam Flours Assessment of Flour Characteristics, Product Quality, and Economic Feasibility

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Abstract

Heavy reliance on imported wheat flour in tropical countries underscores the urgent need for locally sourced, gluten-free alternatives that enhance food security, promote agricultural value addition, and support sustainable food systems. This study developed composite cakes utilizing flours derived entirely from taro (Colocasia esculenta) and lesser yam (Dioscorea esculenta) as complete substitutes for commercial cake flour, evaluating their physicochemical properties, functional characteristics, quality, sensory acceptability, and economic feasibility. An experimental design tested three taro–lesser yam composite flour ratios (25:75, 50:50, and 75:25) against a commercial gluten-free flour control. Tubers underwent standardized boiling, dehydration (60 °C), milling, and sieving. Flours and resulting cakes were analyzed for moisture content, water activity (aw), pH, bulk density, swelling capacity, foam capacity, crumb color, and sensory acceptability via a 9-point hedonic scale (n = 90). Utility-inclusive production costs were also assessed. Composite flours exhibited excellent storage stability, with low moisture contents (7.21–7.86%) and water activity values below 0.51. Significant differences occurred among treatments: the 50:50 blend exhibited the highest swelling capacity, while the 75:25 blend demonstrated superior foam capacity. Baked cakes possessed acceptable physicochemical profiles and received sensory scores ranging from "like slightly" to "like moderately," with the 50:50 formulation achieving the highest overall acceptability. Economic analysis, factoring in yield-adjusted flour costing, electricity, water, and LPG expenses, revealed total production costs of ₱61.16 to ₱68.10 per batch. This represents a substantial 32–39% cost advantage over commercial gluten-free alternatives. Utilizing taro and lesser yam composite flours provides a functional, sensorily acceptable, and economically viable strategy to replace imported flour, successfully driving local agricultural sustainability and food security forward.

Keywords: *Economic feasibility, Food security, Functional properties, Gluten-free bakery*

Predictors of Performance in the Licensure Examination for Agriculturists in Eastern Samar State University, Can-avid Campus

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Abstract

The Licensure Examination for Agriculturists (LEA) serves as a critical benchmark for assessing the competence and professional readiness of agriculture graduates. This study investigated the factors influencing the performance of graduates of Eastern Samar State University (ESSU) in the LEA and examined the relationship between academic indicators, review preparation strategies, and challenges encountered during examination preparation. A descriptive-correlational research design was employed involving 71 ESSU agriculture graduates who had taken the LEA.

The study profiled respondents according to age, sex, civil status, academic performance indicators, examination history, preparation strategies, and challenges encountered. Results revealed that the majority of the respondents were 21–25 years old (66.19%), with a slightly higher proportion of male graduates (56.3%) than females (43.7%). Most respondents obtained a major subjects GWA of 85–90, indicating satisfactory to very satisfactory academic performance. In terms of LEA outcomes, 49.3% of the respondents passed the examination on their first attempt, while the remaining respondents either failed or required additional attempts before obtaining a passing result. Analysis of review preparation strategies showed that the most frequently utilized approaches were taking notes during lectures, maintaining a definite daily study schedule, attending review centers, and listening attentively during review sessions. These findings suggest that structured and disciplined study habits remain important components of successful examination preparation. Conversely, the most frequently encountered challenges included having work responsibilities during the review period, insufficient time for review, financial constraints, and lack of adequate sleep, all of which potentially hinder examination performance. Inferential analysis further revealed significant relationships between performance in selected LEA subject areas—namely Crop Science, Soil Science, Crop Protection, Animal Science, Agricultural Economics, and Agricultural Extension—and several undergraduate academic performance indicators. These findings underscore the importance of strong academic foundations and effective preparation practices in achieving favorable licensure examination outcomes. Based on the results, the study recommends the implementation of targeted academic enhancement programs, strengthened institutional review initiatives, flexible support mechanisms for working graduates, and financial and psychosocial assistance programs to improve LEA performance and increase the passing rates of future ESSU agriculture graduates. The

findings may serve as a basis for developing an evidence-based institutional plan of action aimed at enhancing graduate preparedness and professional success in the agriculture profession.

Keywords: *licensure exam for agriculturists, predictors of performance*

Artificial Intelligence in Language Classrooms: Transforming Traditional Pedagogies

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Abstract

This study investigated the integration of Artificial Intelligence (AI) in language classrooms and its implications for transforming traditional pedagogical practices across the seven campuses of North Eastern Mindanao State University (NEMSU). Specifically, it examined teachers' perceptions of AI, its effectiveness in enhancing students' language learning outcomes, the challenges associated with its implementation, and teachers' experiences in utilizing AI-powered tools for instruction. A mixed-methods research design was employed involving 58 language teachers selected from the university's campuses. Quantitative data were collected through structured questionnaires and analyzed using descriptive and inferential statistics, while qualitative data were obtained through in-depth interviews and examined using Braun and Clarke's thematic analysis. Findings revealed that teachers generally exhibited positive perceptions toward AI, recognizing its usefulness in improving instructional delivery, promoting personalized learning, and increasing student engagement. AI was perceived as moderately effective in enhancing vocabulary acquisition, grammar proficiency, speaking and listening skills, and reading and writing competencies. However, challenges such as inadequate technological infrastructure, limited professional training, curriculum misalignment, and resistance to technological change persisted. Significant relationships were found between selected demographic variables, teachers' perceptions, and the perceived effectiveness of AI. Based on the findings, the study proposes the Balanced AI Integration in Language Pedagogy (BAILP) Framework, which advocates ethical, pedagogically sound, and human-centered AI integration. The study concludes that AI holds considerable potential to enrich language education when supported by institutional readiness, continuous professional development, and responsible implementation policies.

Keywords: *Artificial intelligence, language education, AI integration, teacher perceptions, language pedagogy, mixed methods, BAILP framework.*

Formulation and Comparative Evaluation of a Biodegradable Plant-Based Hand Sanitizer Using Aloe Vera with Garlic (Allium sativum) and Malunggay (Moringa oleifera) Extracts

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Abstract

This study aims to develop a biodegradable, plant-based hand sanitizer using natural extracts as a sustainable alternative to alcohol-based products. It seeks to provide a low-cost, skin-friendly solution utilizing locally available materials. The research addresses the gap in home-based production of eco-friendly hygiene solutions. An experimental design was utilized to compare three formulations: a control group, a garlic-based extract, and a malunggay-based extract. Antibacterial effectiveness was tested using the bread method to observe mold growth over five days. Skin safety was evaluated through topical application, and biodegradability was assessed via soil exposure over a nine-day period. Results showed that the garlic-based formulation was the most effective antibacterial agent, with no visible mold growth until Day 3, compared to the control which showed contamination by Day 2. The malunggay-based sanitizer was the most skin-friendly, showing no irritation or dryness. All formulations were confirmed to be fully biodegradable, with plant-based samples achieving complete decomposition in soil within nine days. In conclusion, natural plant extracts can be formulated into effective, safe, and environmentally sustainable hand sanitizers. Garlic extract provides superior antibacterial protection, while malunggay offers optimal skin compatibility

Keywords: *Biodegradable hand sanitizer, plant-based sanitizer, garlic extract, malunggay extract, antibacterial activity, skin-friendly formulation, sustainability.*

Building Financial Resilience: Analyzing the Financial Literacy and Capacity Among Community Households

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Abstract

This research examined the financial literacy and capacity of community households within the five selected barangays of Tago, Surigao del Sur, recognizing the increased economic vulnerabilities of rural and low-income families. This study aims to recognize their knowledge, skills, attitude, and barriers towards building financial resilience. Using a mixed-method approach, the data were collected through a structured researcher-made survey questionnaire of 300 households and 13 in-depth interviews with randomly selected key informants. Results indicate that although majority of the households showed rudimentary awareness of financial principles, gaps still persist to use this knowledge in long-term financial planning. Financial resilience was moderate but highly restricted by persistent barriers like unstable income, limited access to formal financial programs, and inadequate digital proficiency. Statistical analysis also revealed a significant correlation between financial literacy, financial capacity, highlighting how these can strengthen coping mechanism against economic shocks. The qualitative data further highlighted the household's narratives of financial challenges and coping mechanisms. Based on this study, it was concluded that building financial resilience goes beyond household-level literacy programs but also demands wider structural interventions. The findings underscore the need to institutionalize a **community-based financial resilience extension program** that integrates structured financial education, facilitated access to appropriate financial services, and targeted e-capacity building initiatives. Such an extension program can serve as a practical platform for delivering context-specific financial knowledge, strengthening households' engagement with formal financial systems, and enhancing digital financial competencies, thereby promoting sustainable household financial well-being.

Keywords: *Financial literacy, Financial Capacity, Financial Resilience, Debt Management, Household Finance, Economic vulnerabilities*

Local Governance Challenges and Community Aspirations: Evidence-Based Inputs for The Barangay Cabangahan Development Plan 2025–2030

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Abstract

This study examined the governance challenges and community development aspirations of residents in Barangay Cabangahan, Tago, Surigao del Sur, to generate evidence-based inputs for the formulation of the Barangay Development Plan. Anchored on participatory and evidence-based governance, it aimed to determine the socio-demographic characteristics of respondents, assess governance challenges in terms of transparency and accountability, resource allocation, community participation, and accessibility of basic services, identify priority community development aspirations, and determine whether differences exist across socio-demographic groups. The study utilized a quantitative research design employing structured survey questionnaires administered to fifty (50) respondents composed of barangay officials and community residents. Descriptive statistics such as frequency, percentage, mean, and standard deviation were used to analyze governance perceptions and development priorities, while the Kruskal–Wallis test determined differences across socio-demographic variables. The study also integrated extension strategies, including participatory consultations, barangay assemblies, and planning workshops, to validate findings and encourage community engagement in development planning.

Results indicated that governance practices in the barangay were generally satisfactory, although concerns noted regarding limited community consultation in financial decisions and restricted access to financial information. Health services were perceived as satisfactory, while education and infrastructure services were identified as needingimprovement. High community priorities included access to safe potable water, digital services, livelihood support, and strengthened transparency and citizen participation.

This concludes that strengthening participatory governance, transparency mechanisms, and community-based planning. Integrating empirical research findings with extension-based participatory planning can support the formulation of a more inclusive and responsive Barangay Development Plan for 2025–2030.

Keywords: *Particpatory Local Governance, Barangay Development Plan.*

Sensory Evaluation and Consumer Acceptability of a Functional Herbal Drink Enriched with Natural Ingredients

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Abstract

Functional beverages have gained increasing attention in the food industry due to rising consumer demand for natural products that promote health and wellness. This study aimed to develop and evaluate a herbal-based functional drink formulated from ginger (*Zingiber officinale*) extract, *Glacilaria* spp. seaweed extract, and selected herbal ingredients including turmeric, lemongrass, and calamansi. Specifically, the study determined the most preferred formulation (MPF), assessed sensory characteristics, evaluated selected physico-chemical properties, and identified significant differences in consumer acceptability. A single-factor experimental design using a Completely Randomized Design (CRD) was employed. Four treatment formulations were prepared and evaluated by 100 consumer panelists representing different age groups. Sensory evaluation was conducted using a 9-point hedonic scale to assess color, odor, taste, consistency, and overall acceptability. Data were analyzed using descriptive statistics, Analysis of Variance (ANOVA), and Friedman's test. Results showed that Treatment B, containing 20% ginger extract and 4% *Glacilaria* spp. seaweed extract, was identified as the most preferred formulation. Sensory evaluation revealed that this treatment exhibited an attractive yellow color, a moderately pronounced ginger and lemongrass aroma, a balanced moderately sweet and spicy taste, and a moderately thin syrup-like consistency. Physico-chemical analysis indicated a pH value of 3.11, suggesting a strongly acidic profile that may contribute to microbial stability and extended shelf life, and a total soluble solids (TSS) value of 34.86°Brix, indicating acceptable sweetness. Overall consumer acceptability across elementary, high school, college, and employee groups was rated as "Like Very Much." These findings demonstrate the strong potential of the developed herbal beverage as a functional drink and highlight its suitability for commercialization as an innovative value-added product for health-conscious consumers.

Keywords: *Herbal beverage, Glacilaria spp. Seaweed, Immune- Boosting Drink, Functional beverage, Herbal formulation*

Halal Lifestyle Adoption (HLA) and Consumers' Well-being in Jolo: The Moderating Role of Social Influence

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Abstract

This study was conducted to determine the Halal lifestyle adoption (HLA) and consumers' well-being in Jolo: The moderating role of social influence. It employed a quantitative, descriptive, correlational, and cross-sectional research design. The descriptive components utilized means and standard deviations in the analysis; and correlational component utilized non-parametric method such as a Spearman rank correlation (ρ) and the sub-group comparison approach. A purposive sampling design among the 200 consumers in Jolo in its selected five barangays was utilized with researchers adapted and structured questionnaire from relevant literatures. The results showed a very high extent of Halal lifestyle adoption among consumers in Jolo with overall weighted mean of 4.64 and a low standard deviation (0.370) suggesting a strong consensus within the Jolo community. A very high extent of social influence among consumers in Jolo in Halal lifestyle adoption revealed with overall weighted mean of 4.48 (SD = 0.640), with identification (M = 4.53) plays an even more vital role than compliance (M = 4.43). Result indicated that adopting a Halal lifestyle in Jolo is fundamentally about identity building, maintaining cultural and religious ties, and expressing respect toward admired social units. Further, it revealed a very high status of consumers' well-being in Jolo across psychological, social, physical, and spiritual dimensions, and an overall well-being with weighted mean of 4.62 (SD = .419). Moreover, the spiritual domain acts as the primary anchor, translating into high cognitive resilience (psychological) and healthy habits (physical), all while being structurally protected by strong familial mechanisms (social). A statistically significant moderate positive relationship existed between Halal lifestyle adoption and all dimensions of well-being ($p < .05$) with ρ values ranging from .381 to .486 ($p < .001$), with overall well-being showed the strongest correlation, $\rho = .499$, $p < .001$, implying that the higher levels are associated with improved well-being outcomes. Finally, the results showed the role of social influence in the relationship between Halal lifestyle adoption and consumers' well-being in Jolo moderate to strong, positive correlation (Cohen,1988; Akoglu, 2018; and Schober et al. (2018), across all dimensions with an overall consumers' well-being result of $\rho = .497$, $p < .05$; .01 prominently found in Low Social Influence Group. Hence, Halal lifestyle adoption is most strongly linked to social well-being followed by spiritual well-being (ρ = .497;

.454, $p < .05$; .01) implying positively that when people adopt a Halal lifestyle without external pressure (intrinsic motivation), their well-being increases significantly; likewise, the high spiritual consumers' well-being indicated a direct result of personal faith integration. However, in High Social Influence Group, the correlations are significantly weaker or statistically non-significant ($\rho = .340$, $p < .05$), implying that when social pressure (extrinsic motivation) is high, the link weakens. The result showed consumers' spiritual well-being depends heavily on personal autonomy rather than social conformity. Henceforth, conclusions and recommendation were drawn.

Keywords: *Halal, Lifestyle Adoption, Well-being, Social Influence, Consumers, Jolo*

Building National Resilience and Societal Preparedness in the Face of Energy and Nuclear Security Challenges in the Philippines

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Abstract

With respect to energy challenges, the depletion of the Malampaya gas field, which will soon be exhausted, and geopolitical tensions that led to the closure of the Strait of Hormuz have caused global energy disruptions, including in the Philippines, where President Ferdinand Marcos Jr. declared a state of national emergency on March 24, 2026. In terms of nuclear risks, in recent years, underwater drones were found in different waters of the Philippines, and in 2024, some individuals were caught by the National Bureau of Investigation (NBI) with depleted uranium. These incidents may pose a potential threat to national security due to risks of radioactivity and toxicity. The objective of this study is to address problems that may arise with respect to the energy crisis and nuclear threats by analyzing the Philippines' interagency coordination and national resilience and to contribute to the body of knowledge pertaining to national security. The method of the study is a qualitative research design. After reviewing related literature, thematic analysis will be conducted. To develop strategic recommendations, the Threat–Vulnerability–Consequence (TVC) framework will be used to analyze themes. The outcomes of the study are expected to provide strategic insights based on the application of the TVC framework through thematic analysis. Strategic insights include interagency coordination, national resilience, energy security, and nuclear security, which reflect the critical importance of nuclear technology in today's world of advanced and complex technological development. The study also seeks to contribute to the body of knowledge with respect to energy and nuclear security challenges and how to address these through strengthening national readiness and resilience.

Keywords: *societal preparedness, governance and interagency coordination, national resilience, nuclear security, nuclear technology, energy security*

Psychological Well-Being, Organizational Committment, and Intention to Stay Among Staff Nurses

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Abstract

This study examined the influence of psychological well-being and organizational commitment on the intention to stay among staff nurses at Bukidnon Provincial Hospital–Maramag. A descriptive-correlational design was utilized, involving 118 staff nurses selected through total enumeration sampling. Data were collected using standardized questionnaires measuring psychological well-being, organizational commitment, and intention to stay. Descriptive statistics, Pearson correlation, and multiple regression analysis were employed to analyze the data. Findings revealed that psychological well-being, organizational commitment, and intention to stay were all at high levels among the respondents. In terms of relationships, correlation analysis showed that most variables were significantly associated with intention to stay, except for personal growth, which did not demonstrate a significant relationship. Furthermore, multiple regression analysis identified enthusiasm to work hard as the only significant predictor of intention to stay. This suggests that motivation and active engagement in work play a crucial role in influencing nurses' decision to remain in their organization. The results highlight that while overall well-being and commitment are important, specific aspects such as enthusiasm and work motivation have a stronger impact on retention. Based on these findings, it is recommended that healthcare institutions strengthen programs that promote motivation, engagement, and professional fulfillment. These may include the implementation of wellness initiatives, recognition and reward systems, opportunities for career advancement, and supportive leadership practices. Creating a positive and empowering work environment may further enhance nurses' commitment and encourage long-term retention in the organization.

Keywords: *Psychological Well-Being; Organizational Commitment; Intention To Stay; Nurses; Retention*

Modeling The Effects of Perceived Gender Bias on Classroom Experiences and Academic Performance of College Students

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Abstract

Gender bias in educational settings is a persistent issue that affects students' engagement, performance, and overall academic achievement. Despite advancements in promoting gender equity, its impact on academic success remains underexplored, particularly in male-dominated fields such as criminology. This study examines the effects of perceived gender bias on academic achievement among students enrolled in the Bachelor of Science in Criminology program, investigating how gender bias influences classroom experiences such as participation, teacher interactions, peer interactions, and academic assessments, and how these factors mediate the relationship between gender bias and students' General Point Average (GPA). A quantitative, descriptive-correlational research design was employed. Data were collected from 338 criminology students using a structured survey questionnaire and analyzed through Structural Equation Modeling (SEM) to evaluate both direct and indirect relationships among the study variables. Findings revealed that perceived gender bias significantly influenced students' classroom experiences, including participation, teacher interactions, peer dynamics, and perceptions of academic assessment. Furthermore, these variables served as significant mediators of the relationship between gender bias and academic achievement. Classroom participation and teacher interaction demonstrated positive mediating effects, suggesting that supportive and inclusive learning environments can mitigate the negative consequences of gender bias. In contrast, peer interaction and academic assessment exhibited negative mediating effects, contributing to lower academic performance among students who perceived greater gender bias. The findings indicate that gender bias affects academic achievement through multiple social and instructional processes operating within the classroom environment. This study contributes to the growing literature on gender equity in higher education by highlighting the pathways through which gender bias influences student outcomes and underscores the need for gender-sensitive teaching practices, equitable assessment procedures, and inclusive educational environments that support the academic success of all students regardless of gender.

Keywords: *academic achievement, classroom environment, education setting, mediating effects*

An XGBoost-XAI Model for Landslide Susceptibility Prediction Using Geospatial Data in Benguet Province

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Abstract

Benguet Province is highly susceptible to rainfall-induced landslides due to its rugged topography, complex geology, and intense monsoonal precipitation. While machine learning effectively captures the non-linear relationships between environmental triggers and slope instability, high-performing models often function as "black boxes," hindering transparent disaster decision-making. This study addresses this limitation by developing an interpretable Landslide Susceptibility Map (LSM) for Benguet Province that integrates XGBoost with Explainable AI (XAI) frameworks. Utilizing a historical landslide dataset and key environmental conditioning factors, the research employs Slope Units (SUs) as the primary mapping units. Spatial clustering and multicollinearity analysis were implemented to optimize feature selection and handle variable dependency. Model transparency was achieved through SHAP (SHapley Additive exPlanations) values to quantify factor contributions and explain individual hazard predictions. The results demonstrate that the SU-based XGBoost model yields superior predictive performance. Furthermore, the XAI framework successfully identified the primary hazard drivers (e.g., slope angle and rainfall intensity), providing a clear, data-driven, and highly actionable landslide susceptibility visualization.

Keywords: *Explainable Artificial Intelligence, Landslide Susceptibility Mapping, SHAP, XGBoost*

Profitability, Economic Incentives, Comparative and Competitive Advantage of Prawn Production in Panguil Bay, Northwestern Mindanao, Philippines

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Abstract

Given the growing status of Panguil Bay's fishery products in the international market, this study analyzed the data on prawn production in the three provinces along Panguil Bay, Northwestern Mindanao, Philippines. The study estimated the profitability, the economic incentives, the comparative and the competitive advantages of prawn production. The financial and economic profitability were calculated and the efficiency of its production was determined. The NPR assessed the economic incentives, DRC and RCR determined the existing comparative and competitive advantage while PAM calculated the NPP and NSP. Prawn production is financially profitable with an ROI of 177.26% and economically viable with an economic ROI of 237.47%. These profitability findings denote that producing the commodity is beneficial to the society and it is an efficient user of the limited resources of the economy. However, prawn producers suffered from an economic disincentive in production as revealed by the NPR at -6.99%. This means that producers opt to export than to cater the domestic demand. Luckily, DRC was at 0.813 < 1 which means that prawn commodity is economically viable for export and RCR is at 0.016 < 1 which indicates that prawn producers only need 0.016 cents to produce a dollar's worth of prawn which connotes a competitive advantage. Government must formulate specific policies to protect the local consumers since producers opt to export prawns. Then, carry out more research and trainings of improving the productivity and quality of prawns that translate into better export price since prawns have comparative and competitive advantages.

Keywords: *Economic incentives, Comparative advantage, Competitive advantage, PAM model approach*

Emerging Trends in Sustainable Waste Management Practices within the Hospitality Industry

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Abstract

The hospitality industry faces increasing pressure to adopt sustainable waste management practices in response to escalating environmental concerns, resource depletion, and stricter regulatory requirements, in alignment with the United Nations Sustainable Development Goal (SDG) 12: Responsible Consumption and Production, which emphasizes waste reduction, recycling, and efficient resource utilization. This study aimed to examine emerging trends and innovative approaches to sustainable waste management practices in the hospitality industry, focusing on waste generation, disposal, segregation, recycling, and collection and transportation. A qualitative research methodology utilizing Qualitative Content Analysis was employed to analyze data collected from selected hospitality establishments. To further examine differences in waste management practices, Analysis of Variance (ANOVA) was used to determine whether significant variations existed based on respondents' demographic profiles, including gender, age, educational attainment, length of service, employment status, and tourism sector affiliation. The findings revealed that waste disposal and recycling practices were consistently implemented across establishments, indicating strong adherence to standardized procedures and regulatory requirements. However, variations were observed in waste generation practices, particularly in relation to employees' length of service, suggesting that operational experience enhances efficiency in waste handling. Differences were also identified in waste segregation and collection and transportation practices, reflecting varying levels of environmental awareness, organizational priorities, and resource availability. The study underscores the importance of continuous staff training, provision of adequate waste management facilities, strict policy implementation, and active stakeholder engagement to strengthen sustainable waste management initiatives and support long-term sustainability within the hospitality sector.

Keywords: *sustainable waste management, hospitality industry, SDG 12, qualitative content analysis, environmental responsibility, operational efficiency*

Thermal Performance and Drying Evaluation of a CFD-Optimized Biomass-Fired Fish Dryer for Various Fish Products

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Abstract

Limited studies have integrated air distribution simulation and experimental validation to improve the performance of biomass-fired fish dryers. This study aimed to optimize and evaluate the thermal and airflow performance of a multi-layer biomass-fired fish dryer through computational fluid dynamics (CFD) analysis and experimental validation. The dryer's performance was evaluated using four fish products following the PNS/BAFS 344:2022 standards. CFD results showed that the addition of exhaust vents and four 45-degree baffles provided a more uniform airflow and temperature distribution. Experimental results indicated drying air temperatures ranging from 77.5 °C to 80.8 °C, with a mean of 78.93 °C. The highest drying rate was 18.48 kg/h for split round scad, while boneless anchovies achieved the highest heating system efficiency of 75.17%, demonstrating the dryer's potential for practical fish drying applications.

Keywords: *biomass dryers; computational fluid dynamics; drying systems; fish drying; temperature uniformity*

How Supportive Leadership Fosters Organizational Citizenship Behavior: A Parallel Mediation Model of Organizational Culture and Perceived Organizational Support

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Abstract

Organizational citizenship behavior (OCB) is increasingly recognized as a critical source of organizational effectiveness and long-term competitiveness. Despite extensive research on leadership and employee behavior, the mechanisms through which supportive leadership promotes OCB remain insufficiently understood, particularly in emerging economies. This study investigates the direct and indirect effects of supportive leadership on organizational citizenship behavior through the parallel mediating roles of supportive organizational culture and perceived organizational support. A cross-sectional quantitative research design was employed, using survey data collected from 420 employees working in private-sector organizations in Ayutthaya, Thailand, who were selected through simple random sampling. Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS. The findings reveal that supportive leadership significantly enhances both supportive organizational culture and perceived organizational support, which subsequently promote organizational citizenship behavior. Supportive leadership also exerts a significant direct effect on organizational citizenship behavior, indicating complementary partial mediation. The structural model explains 44.6% of the variance in supportive organizational culture, 48.5% of the variance in perceived organizational support, and 67.2% of the variance in organizational citizenship behavior. These findings extend organizational support and leadership literature by demonstrating the complementary roles of organizational culture and perceived organizational support as parallel mediators linking supportive leadership to employees' discretionary workplace behaviors. The study also provides practical guidance for managers seeking to cultivate citizenship behaviors through supportive leadership practices and employee-centered organizational environments.

Keywords: *Organizational citizenship behavior; Perceived organizational support; PLS-SEM; Supportive leadership; Supportive organizational culture*

Fortification and Nutrition Assessment of Squid Seasoning Powder

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Abstract

This study developed and evaluated a squid seasoning powder fortified with vitamin A and iron using dried squid (Lumayagan pusit) as a value-added product to address the oversupply of dried squid while promoting nutrition and sustainability. Two formulations were prepared: F1 (control, without fortification) and F2 (fortified with 1,000 mg ferric pyrophosphate EDTA and 100 mg retinyl palmitate). The fortified product was assessed through sensory evaluation, physicochemical analysis, proximate composition, microbiological testing, and micronutrient analysis. Sensory evaluation was conducted with 100 randomly selected panelists using a 7-point hedonic scale to determine consumer acceptability. Results showed no significant differences ($p > 0.05$) between the fortified and non-fortified formulations in terms of color, aroma, texture, taste, and overall acceptability, indicating that fortification did not negatively affect the product's sensory qualities. Physicochemical analysis revealed favorable product stability with a pH of 6.01, low water activity (0.1578), and 10.09% moisture content, supporting extended shelf life. The fortified seasoning contained 55.23% protein, 3.01% fat, 22.46% ash, and 9.21% carbohydrates, demonstrating its nutritional value. Micronutrient analysis confirmed a substantial increase in iron (68.20 mg/100 g) and vitamin A (16,292 IU/100 g) compared with the control formulation. Microbiological evaluation showed that aerobic plate count, total coliform, and mold and yeast counts were all within acceptable safety limits, confirming the product's microbiological quality. Overall, the findings demonstrate that vitamin A and iron fortification can be successfully incorporated into squid seasoning powder without compromising sensory acceptability, safety, or product quality. The developed seasoning powder offers a nutritious, shelf-stable, and consumer-acceptable condiment that supports food innovation, enhances micronutrient intake, and provides an opportunity to increase the economic value of dried squid while contributing to sustainable fisheries and food security.

Keywords: *Squid seasoning powder, fortification, vitamin A, iron, sensory evaluation, food innovation, dried squid.*

Smart AI-Powered POS for Efficient Inventory, Sales, and Queue Management with QR-based ordering architecture for MSMEs

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Abstract

This study was designed and developed for small business owners located in the province or remote areas that offer services such as coffee shops, bakeries, grocery stores, and similar microenterprises operating in both urban and remote areas. Its primary purpose is to provide a smart offline/online AI-powered Point of Sale (POS) system that enables accurate sales and inventory monitoring even with or without internet connectivity. The system automates manual business operations using AI algorithms, integrates QR code processing to speed up transactions, and includes forecasting (using linear regression, ARIMA, Random Forecast and Naïve Baseline) and dynamic queue management features to enhance decision-making and performed an accuracy and reliability of forecasted sales. The researchers adopted a developmental method of research to allow for future expansion and customization of the system based on user needs. The AI-powered POS system was subjected to quality evaluation using the Systems and Software Engineering Systems and Software Quality Requirements and Evaluation (SQuaRE) or ISO 25010 standard. Ten (5) identified IT experts and forty (40) end users, comprising small business owners, staff, and store managers, students, were purposely selected to evaluate the system. The results of the evaluation show that the system attained an overall high-quality performance, with Usability rated at 4.91 (Excellent), Compatibility at 4.90(Excellent) and Portability rated at 4.90 (Excellent), indicating that the system is highly efficient, user-friendly, and adaptable for small business operations.

Keywords: *Point of Sale, AI-Powered System, Sales Forecasting, QR Code, Automated Inventory, Queue Management*

Angat Dam Adaptive Infrastructure Management: Assessing Water Supply Reliability in Urbanized Metropolitan Manila Amid Climate Extremes.

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Abstract

The reliability and performance of the Angat Dam's water supply system have been explored amid rising urbanization, increasing water demand, and climate variability in Metropolitan Manila. This study explores how fluctuating weather patterns, reservoir behavior, and infrastructure limitations affect the long-term reliability of the water supply and highlights the need for adaptable management strategies.

We employed a descriptive qualitative approach along with trend evaluations, water balance assessments, and Reliability–Resilience–Vulnerability (RRV) analyses. From 2019 to 2025, we examined monthly data on reservoir levels, billed water volumes, non-revenue water (NRW), and water allocation to assess the system's response to changing hydrological conditions. A reservoir level of 180 meters signifies operational stress or potential system failure.

Findings revealed that average daily water demand increased from approximately 2,826.58 million liters in 2019 to about 2,946.37 million liters in 2025. This growth emphasizes the pressures urbanization and population expansion place on the water supply. Analysis showed concerning periods of low storage during dry months, with a recorded low of 160.97 meters in July 2019, alongside similar stresses in 2020, 2022, and 2024.

The RRV assessment indicated a reliability of 88.10%, suggesting the system's overall effectiveness amid rising demand and climate stresses. However, a resilience value of 40.00% indicates moderate recovery capacity, and a vulnerability score of 3.26% highlights ongoing challenges during low-storage periods. These findings stress the importance of adaptive management, climate-responsive operations, and long-term planning to improve water supply reliability and sustainability in Metropolitan Manila.

Keywords: *Adaptive water management; Angat Dam; urbanization; climate variability; RRV framework*

IoT- Based Energy Detection System

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Abstract

Access to electricity is particularly important for human development because all these basic activities, such as lighting, cooling systems, running home appliances, and operating equipment, cannot be performed efficiently with other forms of energy. This project developed an IoT-Based Energy Detection System at the Central Philippines State University (CPSU)-Hinigaran Campus. This is successfully monitoring electric current flow and managing the switching of electrical circuits. The device is cost-effective and can be used by any university personnel. Additionally, its components are readily available in the country and can be easily procured. Users can install and operate the system independently, requiring minimal technical knowledge. The system is designed to be compatible with smartphones, making it simple to use, easily accessible, and visually appealing to consumers. The application could be operated using the smartphone through monitoring and managing the active and inactive electric current of the areas that are left ON. The IoT-based energy Detection System is good, precise, and reliable equipment to use in energy detection monitoring. The device is most effective in terms of its functionality, performance, usability, compatibility, and reliability. The only limitation is that, it cannot monitor all the offices since it is only a prototype, however, enhancement/upgrades to the device are recommended. The usability of the IoT-based energy Detection System, as evaluated by the end users using USE Questionnaire, was rated as strongly agree which is interpreted as acceptable in terms of in terms of ease of use, usefulness, ease of learning, and satisfaction.

Keywords: *1st IoT, 2nd Energy, 3rd Monitoring, 4th Managing, 5th Application*

Predictors of Condom-Use Intentions Among Senior High School Students: A Behavioral Model Analysis

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Abstract

Individual perceptions, attitudes and social environments play a significant role in shaping adolescent sexual behaviors. Guided by the Health Belief Model (HBM) and the Theory of Planned Behavior (TPB), this study evaluated the predictors of condom-use intentions among Senior High School students in Naawan District, Northern Mindanao, Philippines. The researcher used descriptive-correlational and causal research designs and obtained 164 respondents by using a validated Likert-type questionnaire. The descriptive analysis showed that the students' perception of risk from unsafe sexual practices was high, attitudes towards condom use were generally positive, and influences from peers and teachers were constructive in the students' decisions about sexual health. Results of correlation analysis indicated that there was a significant correlation between the perceived risk, attitudes, social influence, and condom use intention. In addition, multiple regression showed that the perceived benefits of condom use, peer influence, and moral/cultural beliefs were significantly related to intentions; and that peer influence and perceived benefits were the strongest predictors. The findings underscore the importance of peer-led interventions as well as teacher-led sexual health education to promote responsible adolescent sexual behaviors, and the need for culturally relevant, values-driven curricula.

Keywords: *Condom-use intentions, Health Belief Model, Theory of Planned Behavior, Peer influence, Adolescent sexual health.*

Project Management Practices in Land Development Projects in Alviera, Porac, Pampanga: A Phenomenological Study

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Abstract

This phenomenological study examined the project management practices in land development projects in Alviera, Porac, Pampanga, a mixed-use estate designed as an "urban and nature" community integrating residential, commercial, institutional, and recreational developments, all of which require a high level of coordination, planning, and execution. The study employs a qualitative research design through semi-structured interviews with fifteen (15) respondents, including proponents/clients, project and construction managers, engineers and site supervisors, and contractors/subcontractors. Data were analyzed through thematic analysis focusing on key areas such as planning and scheduling, cost management and budget control, quality assurance and control, and risk and stakeholder management. The findings reveal that the presence of a Project Management Team (PMT) significantly enhances project performance through structured coordination, clear role allocation, and centralized decision-making. Technical due diligence during planning contributes to more realistic scheduling and reduced project conflicts, while the use of digital tools improves cost monitoring and project tracking. A quality-first approach ensures compliance with standards despite schedule and budget constraints. Common risks related to soil and weather conditions are addressed through flood mitigation. Overall, the study concludes that effective project management significantly improves project efficiency, coordination, and overall project success.

Keywords: *Project Management, Construction Management, Land Development, Project Management Team (PMT), Alviera, Porac, Pampanga, Quality-First.*

Prospects and Challenges on the Implementation of Green Building in the Tarlac Construction Industry

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Abstract

This study investigated the prospects and challenges of implementing green building practices within the Tarlac construction industry. Using a quantitative research method, data were gathered from 100 professionals involved in construction and green building practices through a convenience sampling technique. The research aimed to explore the benefits and obstacles encountered in adopting green building, focusing on employee and employer benefits, cost advantages, and environmental impacts. The questionnaire, adapted from existing literature and verified by experts, employed a five-point Likert scale to gauge respondents' views on various aspects of green building implementation.

Findings indicated that the majority of respondents were young male engineers and architects with some experience in green building. The prospects of implementing green building in Tarlac were perceived positively, with weighted means of 3.99 for employee and employer benefits, 3.74 for cost benefits, and 4.37 for environmental benefits, all interpreted as "agree." Challenges identified included readiness for green building, with a mean of 4.70, and knowledge and barriers to green building, both with a mean of 3.61, indicating moderate agreement on these challenges.

The study concluded that while there was a positive outlook on the benefits of green building, significant challenges remained, particularly in terms of readiness and knowledge. An action plan to address these challenges was recommended to facilitate the successful implementation of green building practices in the Tarlac construction industry. Ethical considerations were meticulously followed, ensuring informed consent, privacy, and the anonymity of respondents. The results of this study aimed to contribute to better collaboration and innovation in sustainable construction practices.

Keywords: *Green Building, Tarlac Construction Industry, Implementation Challenges, Prospects, Environmental Benefits, Employee and Employer Benefits, Sustainable Construction Practices*

Comparative Assessment of Perceived Flood Resilience Dimensions in a Public School in Rizal Province

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Abstract

Flooding remains one of the most frequent natural hazards affecting educational institutions in the Philippines, disrupting school operations, damaging infrastructure, and compromising the safety of students and school personnel. This study comparatively assessed the perceived flood resilience dimensions of a selected public school in Rizal Province, focusing on Structural Resilience, Functional Continuity, and Preparedness and Management. A descriptive-comparative research design was employed involving 107 high school students selected through simple random sampling. Data was collected using a validated survey questionnaire and analyzed using descriptive statistics, including the mean, median, standard deviation, and interquartile range. The Friedman Test and Wilcoxon Signed-Rank Test were used to determine significant differences among the three flood resilience dimensions. The findings revealed a generally satisfactory level of perceived flood resilience. Preparedness and Management obtained the highest median rating, indicating well-established disaster preparedness and management practices, while Functional Continuity received the lowest median rating, highlighting the need to strengthen the school's capacity to sustain educational operations during and after flood events. Significant differences were found among the three resilience dimensions, with Preparedness and Management differing significantly from both Structural Resilience and Functional Continuity. Based on the findings, a Recommendation Matrix and a Proposed Flood Resilience Action Plan were developed to support evidence-based decision-making and strengthen flood resilience in public schools. The study provides practical insights for the Department of Education, local government units, and school administrators in promoting resilient and sustainable learning environments.

Keywords: *Flood resilience; Public schools; Structural resilience; Functional continuity; Preparedness and management; Disaster risk reduction; School resilience.*

The Dao of Digital Visibility: Information Technology, Wuwei, and Indigenous Cultural Tourism in Global Perspective

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Abstract

Digital technologies increasingly shape how travelers encounter Indigenous peoples, heritage landscapes, community enterprises, and cultural protocols. This study examines whether greater digital visibility corresponds with stronger tourism evidence and sustainability support in Indigenous cultural tourism and interprets the findings through Daoist concepts of wuwei, ziran, water-like responsiveness, and relational balance. Using an exploratory global comparative secondary-data design, twelve Indigenous cultural tourism cases across Oceania, North America, Europe, East Asia, Latin America, Southeast Asia, and the Philippines were assessed through a Digital Visibility Index, Tourism Growth Evidence Score, Sustainability Support Index, and combined diagnostic score. Data were drawn from Google Trends, official tourism portals, national statistics, Indigenous tourism organizations, heritage institutions, policy documents, and public reports. Descriptive analysis, index comparison, exploratory Pearson correlation, and typology construction were applied. Chichen Itza/Maya tourism and Cordillera Indigenous tourism recorded the highest digital visibility, while Native American tourism, Indigenous tourism Canada, Māori tourism, and Aboriginal tourism Australia showed the strongest combined evidence and institutional support. Digital visibility was almost unrelated to tourism-growth evidence ($r = 0.022$), whereas tourism-growth evidence and sustainability support were more strongly associated ($r = 0.661$). These findings indicate that online prominence does not necessarily translate into stronger Indigenous participation, community benefit, or culturally accountable tourism systems. The study proposes a Daoist-informed model of digital stewardship based on proportional visibility, community authority over representation and data, contextual interpretation, transparent platform practices, and community-defined measures of success. Daoist and Indigenous traditions are not treated as equivalent; rather, Daoist concepts provide a critical lens for questioning technologically deterministic approaches and for designing information systems that enable cultural flourishing without coercive optimization or excessive exposure.

Keywords: *Daoism; information technology; Indigenous tourism; digital visibility; digital stewardship*

A Predictive Learning Analytics Platform with Instructional Intelligence for Monitoring Student Performance Patterns

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Abstract

The increasing adoption of data-driven approaches in education has intensified the demand for predictive learning analytics platforms that support instructional intelligence and continuous monitoring of student performance patterns. However, many existing educational systems remain fragmented, technically complex, and inaccessible to educators, particularly in learning environments with limited or unstable internet connectivity. This study addresses these challenges through the design and development of a predictive learning analytics platform with instructional intelligence for monitoring student performance patterns.

The proposed platform integrates multimedia-enabled instructional management with predictive learning analytics to analyze student performance patterns over time and support informed instructional decision-making. An iterative and incremental development model was employed, adopting an offline-first architecture using the Flutter framework and Firebase to ensure accessibility across both online and offline educational settings. The system utilizes an icon-based and flow-control paradigm to support intuitive interaction, while a logistic regression–based predictive model analyzes student demographics, prior academic records, study habits, and assessment results to forecast academic outcomes and identify learners at risk.

Comprehensive system evaluation was conducted through black-box, white-box, positive, and negative testing procedures to ensure reliability, correctness, and security. Software quality assessment based on ISO 9126 standards involved expert evaluation by educators and IT professionals, focusing on functionality, usability, reliability, maintainability, and portability. Results indicate that the platform was rated as “Perfectly Acceptable” across all quality criteria. In addition, the predictive model achieved an accuracy of 94.04% and an Area Under the Curve (AUC) of 0.990, demonstrating strong effectiveness in monitoring student performance patterns and supporting proactive instructional intervention.

The findings confirm that embedding instructional intelligence within a predictive learning analytics platform enhances data-informed teaching, enables timely academic support, and promotes equitable learning practices, particularly in resource-constrained educational contexts.

Keywords: *Artificial Intelligence, Learning Analytics, Predictive Analytics, Student Performance Pattern, Instructional Intelligence*

Detection Rates and Spatial Occurrence of the Palawan Pangolin (*Manis culionensis*) Across Selected Sites in Palawan, Philippines

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Abstract

The **Palawan pangolin (***Manis culionensis***)**, a Critically Endangered mammal endemic to Palawan, faces increasing threats from habitat loss, hunting, and illegal wildlife trade. Despite its conservation importance, information on its distribution, occurrence, and relative abundance across the province remains limited, as most previous studies have been confined to localized surveys. Consequently, broader spatial patterns of pangolin occurrence across Palawan remain poorly understood, limiting the development of effective conservation strategies. This study assessed the detection rates and spatial occurrence of the Palawan pangolin and associated mammalian fauna using camera-trap surveys conducted across selected sites in southern, central, and northern Palawan. A total of 7,627 trap nights were accumulated across six survey areas: Culasian, Rizal (1,254 trap nights), Aramaywan, Quezon (1119 trap nights), Napsan (966 trap nights), Maoyon–Lucbuan, Puerto Princesa (1,539 trap nights), New Agutaya, San Vicente (1,327 trap nights), and the Dumaran Island Critical Habitat (1,422 trap nights). Detection rates were calculated from independent camera-trap events to evaluate relative species occurrence among sites. A total of 11 mammal species were recorded during the survey period. The Palawan pangolin exhibited generally low detection rates across all sites, highlighting its rarity and the challenges associated with monitoring wild populations. The lowest detection rates were observed in Napsan (0.10) and Maoyon–Lucbuan (0.13), while higher detection rates were recorded in Aramaywan, Quezon (.27), New Agutaya, San Vicente (0.45) and the Dumaran Island Critical Habitat (1.34), indicating greater occurrence and activity in northern Palawan. Among the associated mammalian fauna, the Palawan northern tree squirrel showed the highest detection rates, followed by the Philippine long-tailed macaque, Palawan tree shrew, and Palawan spiny rat. Rarely detected species included the Palawan leopard cat and the short-tailed mongoose. This study provides one of the first regional assessments of Palawan pangolin occurrence across multiple areas of Palawan and reveals substantial spatial variation in detection rates. The relatively higher occurrence of the species in northern Palawan, particularly in Dumaran Island and San Vicente, suggests that these areas may represent important

conservation strongholds. The findings contribute valuable baseline information for understanding the species' distribution and support the need for strengthened habitat protection, long-term population monitoring, and targeted conservation interventions to ensure the persistence of the Palawan pangolin in the wild.

Keywords: *camera trapping, conservation, endemic mammals, mammal diversity*

Digital Marketing Adaption Among Agribusiness Farmers in Catarman, Northern Samar: A Study of Farmers in Barangay Macagtas, Polangi, Cervantes

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Abstract

Agriculture remains one of the primary sources of livelihood in Northern Samar and plays an important role in ensuring food security and supporting local economic development. Despite its importance, many agribusiness farmers continue. to experience marketing challenges such as limited market access, dependence on intermediaries, unstable product price, and inadequate promotional strategies. With the increasing availability of digital technologies and internet-based communication, digital marketing has emerged as an effective approach that allows businesses, including agricultural enterprises, to expand their customer base, promote products, improve communication with buyers, and increase profitability.

ln CATARMAN, NORTHERN SAMAR, many agribusiness farmers continue to rely on traditional marketing methods despite the growing popularity of social media platforms and online marketplace. Limited digital literacy, insufficient internet connectivity, financial constraints, and lack of technical training remain among the possible barriers to adopting digital marketing practices. Understanding these challenges is essential for designing effective intervention that will strengthen farmer's competitiveness and promote sustainable agricultural development.

This study aims to determine the level of digital marketing adoption among agribusiness farmers in BARANGAYS Macagtas, Polangi, and Cervantes in CATARMAN, NORTHERN SAMAR. Specially, the study seeks to describe the respondents demographic profile, determine their level of digital marketing adoption, identify the digital platforms commonly used, examine the factors influencings adoption, determine the challenges encountered, and formulate recommended to improve digital marketing utilization among local farmers.

The study will employ a descriptive – correlational research design using a structure questionnaire to collect data from selected agribusiness farmers. The findings are expected to contribute to the development of extension programs, digital literacy training, and policy initiatives that support the modernization of agricultural marketing in Northern Samar.

Keywords: *Digital Marketing, Agribusiness, Farmers, Technology Adoption, Agriculture Marketing, Northern Samar*

PneumoVision: A Comparison of Five (5) Canned Architectures for Predicting Pneumonia Chest X-Ray Images

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Abstract

There are many neural network models used to perform the training method for the prediction of medical imaging such as chest x-ray images in which it can predict the image as normal or not based on the created model for train and evaluated on the test set. This research feature five canned architectures with pre-trained weights of Keras application and predict the chest x-ray images as normal or not. Also, compare the results obtained from all models to identify the best model among the best. The method was made through classification and visualization of data, data generator and augmentation, training the models, and prediction of accuracy, precision, and recall. The research provided the results from the different versions with the same method and result to the best model of VGG 19 with an accuracy of 87.18 percent, precision of 93 percent, and recall of 97 percent for prediction of pneumonia.

Keywords: *Canned Architecture, Keras Application, Chest X-Ray images, Prediction, Confusion Matrix.*

Development, Sensory Acceptability, and Quality Characteristics of ZamPen Native Chicken Meat Floss

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Abstract

The underutilization of culled native chickens presents a significant economic gap in the poultry industry. This study focused on the development and evaluation of the ZamPen Native Chicken (ZNC) meat floss as a value-added product. Utilizing culled ZNC (aged 24 months and above), the product was developed through a standardized process of boiling, shredding, seasoning, and drying. Sensory evaluation by 100 panelists using a modified hedonic scale revealed a "like moderately" rating for overall acceptability (5.52 ±± 1.19), with specific scores for meatiness (5.61 ±± 0.90) and fibrous texture (5.81 ±± 0.83). Physico-chemical analysis showed the product is high in protein (82.52 g/100g) and low in fat (0.66 g/100g), contributing 37% of Recommended Energy and Nutrient Intakes (RENI) for protein per 35g serving. Microbiological tests confirmed the product is within safe limits for Aerobic Plate Count, E. coli, Salmonella, and Staphylococcus aureus. Shelf-life studies, followed by the validation of DOST IX Regional Standards and Testing Laboratories using the direct method at room temperature (27.1 °C–29.0 °C; 62–81% RH) indicated stability for up to five months in stand-up pouch packaging at room temperature. The study concludes that ZNC meat floss is a viable, nutrient-dense, and shelf-stable product that enhances the market value of culled native chickens.

Keywords: *Zampen Native Chicken, Culled meat, Consumer Acceptance, Physicochemical Properties, Microbiological, Shelf-life Value-Added Product*

Digital Transformation in Carabao Dairy Farming: A Mobile-Integrated Approach to Production and Health Surveillance

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Abstract

Milk production in the carabao dairy sector across Southeast Asia is frequently limited by the absence of organized data management practices, especially among small-scale farmers. Many still depend on handwritten records, which often results in incomplete or delayed information, making it harder to respond quickly to issues or improve productivity. To address this, the paper introduces a digital framework that focuses on creating and using a mobile application for real-time tracking of milk output and animal health.

The study looks into how a mobile-based system can help farmers record detailed profiles for each carabao and input daily milk production data directly while working in the field. In addition to recording quantities, the application includes a health monitoring feature that tracks vital indicators, vaccination timelines, and breeding cycles. With built-in data visualization, the system can highlight unusual changes in milk yield, which may signal early signs of conditions like mastitis or poor nutrition.

Initial findings show that using a mobile system shortens the time between identifying potential health issues and seeking veterinary support. Consistent data collection also gives farmers a clearer basis for planning finances and making decisions about herd management. Overall, this approach improves farm efficiency while helping connect rural farmers with agricultural support services. The study suggests that mobile technology plays an important role in modernizing carabao dairy farming, shifting it toward a more data-driven model that supports both animal health and food security in the region.

Keywords: *Carabao Dairy, Mobile Application, Precision Livestock Farming (PLF), Milk Production Tracking, Health Monitoring, Smallholder Farmers, Digital Transformation.*

Promotional Practices and Preservation of Gastronomic Heritage in the Province of Aklan

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Abstract

Gastronomy is now seen as a determinant factor in attracting tourists while they choose destinations. Food as a tourist attraction is gathering a growing international acknowledgement. Throughout the past years Aklan's gastronomic tourism has continuously struggled to discover and define its identity, to establish and communicate a coherent brand image, and, of course, to increase its tourist activity. This study was conducted to assess gastronomic heritage promotional practices in the province of Aklan. Specifically, it sought to identify the featured traditional foods to promote Aklan's, know the different promotional tools and activities conducted by the Aklan province to motivate local and foreign tourist to experience traditional cuisines, and identify barriers to establishing food and tourism promotional activities. Researchers used the mixed method which is the sequential explanatory design. Questionnaire was the major tool for gathering data relevant to assess gastronomic heritage promotional practices in the province of Aklan. The result showed that majority of the identified Aklan's traditional food were available in local food and beverage service establishments and featured in the promotional activities in Aklan. Food and festival was found out as the top promotional activity. Social media was identified as top promotional tool used to promote Aklan traditional foods. There were nine (9) issues and problems identified by the respondents which hinder in establishing the culinary heritage promotional practices in the province of Aklan.

Keywords: *Local Cuisine, Traditional Foods, Promotion Practices, Marketing Tools*

Taxation and Sustainability in the Philippine Coffee Sector: Evidence from Smallholder Farmers

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Abstract

The Philippine coffee industry supports smallholder farmers and rural livelihoods, yet domestic production remains insufficient to meet growing demand. This study examines how taxation policies shape the sustainability and economic viability of coffee farming, with particular focus on smallholder farmers and small and medium enterprises in the Cordillera Administrative Region. Using a qualitative, policy-oriented case study design guided by the FISAP Action–Hybrid Framework, the study analyzes taxation as a structural driver affecting sustainability adoption, value chain participation, and farmer resilience. Drawing on government data, policy documents, and existing empirical literature, the findings indicate that while taxation policies are designed to promote inclusive growth and fund public development, they impose disproportionate financial and administrative burdens on agricultural producers in geographically isolated regions. The study concludes that greater alignment between taxation policy and agricultural sustainability objectives is necessary to strengthen the long-term competitiveness of the Philippine coffee sector and advance Sustainable Development Goals related to decent work, economic growth, and responsible production.

Keywords: *Agriculture, Coffee, Sustainability, Taxation*

Influence of Continuous Illumination at Increasing Light Intensities on the Growth and Survival of Early Stage Snubnose Pompano, *Trachinotus Blochii*

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Abstract

Light intensity is critical in larval fish culture because early-stage fish larvae depend mainly on vision to detect and capture live food, making proper illumination essential for feeding success. Improper or fluctuating light intensity can alter feeding behaviour and reduce survival, while moderate continuous illumination supports more consistent feeding, growth, and larval performance. The study investigated the influence of continuous illumination at increasing light intensities on feeding, growth, and survival of early-stage snubnose pompano, *Trachinotus blochii*, larvae from 1 to 10 days post-hatching (DPH). Fish larvae were exposed to five treatments with three replicates: T1, natural indoor photoperiod of 12 hours light and 12 hours dark; T2, continuous illumination progressively increased from 300 to 500 lx; T3, from 300 to 1000 lx; T4, from 300 to 2000 lx; and T5, from 300 to 3000 lx. Newly hatched larvae were stocked at 15 ind./L density and fed with enriched rotifers (Brachionus plicatilis; 50-250 µm) at 30 ind./ml starting from 2 DPH. The number of rotifers in the digestive organ, feeding incidence, and total length of larvae were examined at 3-hour intervals from 0400 to 2200 hours (H) on 3 DPH, at 6-hour intervals from 4 to 5 DPH, and once on 8 DPH at 1000 H. The results justified that snubnose pompano was a visual feeder and exhibited diel rhythm within 24 hours of light, while larvae at natural photoperiod usually underwent diurnal rhythms. However, changing light intensity conditions from low to high levels altered the feeding behavior of the fish larvae. Better and consistent feeding and survival of larvae were obtained at moderate continuous illumination at increasing light intensities (300-500 lx). While higher light treatments (300-1000, 300-2000) can yield more remarkable fish growth, they adversely affect larval survival after 5 DPH. In conclusion, moderate continuous illumination progressively increased from 300 to 500 lx promotes consistent feeding, positive growth response,

and improved survival in early-stage snubnose pompano. These findings provide practical guidance for hatchery light management, suggesting that maintaining moderate light conditions can improve larval management, enhance aquaculture productivity, and reduce production losses associated with poor survival under excessive light intensity.

Keywords: *Light intensity, Visual feeder, Feeding incidence, Altered feeding, Diel rhythm, Diurnal rhythms*

Resource Allocation, Nursing Staff Services, and Patient Quality Care Satisfaction

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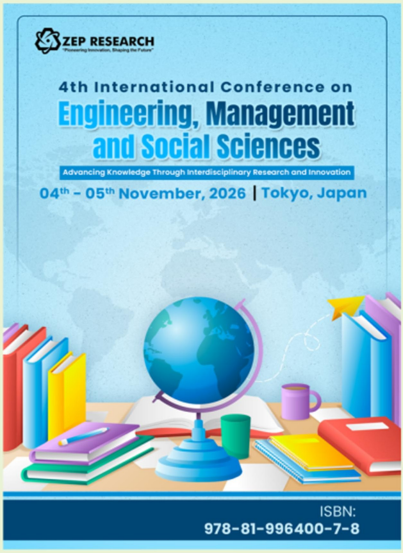
Abstract

This study examined resource allocation, nursing staff services, and patient satisfaction with quality of care among inpatients in four infirmary hospitals in the Municipality of Quezon, Bukidnon. A quantitative descriptive, correlational, and predictive design was employed. Using universal sampling, the study included 400 adult inpatients who had been admitted for at least 24 hours and had received direct nursing care. Data were collected through a 55-item modified and expert-validated questionnaire adapted from established patient satisfaction and healthcare experience instruments. The instrument demonstrated good internal consistency (Cronbach's alpha = .89). Mean and standard deviation were used to describe the variables, while Spearman's rho and multiple linear regression were used to test relationships and predictive influence. Patients reported a high level of resource allocation (M = 4.15, SD = 0.76), high satisfaction with nursing staff services (M = 4.23, SD = 0.75), and high satisfaction with the quality of care received (M = 4.00, SD = 0.85). Resource allocation (rho = .042, p = .398) and nursing staff services (rho = .058, p = .246) were not significantly related to patient satisfaction. The regression model was also not significant, F = 0.759, p = .469, R^2 = .062; neither resource allocation (B = 0.051, p = .681) nor nursing staff services (B = 0.142, p = .253) significantly predicted satisfaction. The findings indicate that patients positively evaluated hospital resources and nursing services, but their overall satisfaction was influenced by a broader care experience beyond the predictors tested. Hospitals should therefore sustain resource and workforce improvements while strengthening communication, responsiveness, care coordination, discharge preparation, and patient feedback systems.

Keywords: *infirmary hospitals, nursing staff services, patient satisfaction, quality of care, resource allocation, rural healthcare*

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