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Philippine Science High School – MIMAROPA Campus

EANS

ENVIRONMENT, AGRICULTURE, AND NATURAL SCIENCES



Decade-Long Coastal Shifts in San Agustin, Romblon: Sedimentation and Vulnerability of Coasta

I Beach Systems

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Monitoring shoreline change is critical for understanding coastal vulnerability and guiding sustainable management in island communities. This study assesses net shoreline movement (NSM) across coastal barangays in San Agustin, Romblon, Philippines, to quantify spatial patterns of erosion and accretion, and identify underlying natural and/or anthropogenic drivers. This study analyzes a decade (2015–2024) of coastal transformation in San Agustin using QGIS and Sentinel satellite images to map erosion-accretion patterns. Results reveal severe shoreline retreat (–125 m) in low-lying, biogenous sediment zones (e.g., Poblacion), contrasting with accretion (+150 m) in terrigenous-mixed areas (e.g., Bachawan). Elevation profiles below mean sea level and anthropogenic pressures - resort encroachment, sand mining, and seawall construction - amplify erosion, despite the presence and expansion of mangrove and beach vegetation. Over 43% of the coastline is eroding in San Agustin, driven by sea-level rise and unregulated development, challenging assumptions of passive ecological resilience. This study uses a predictive model linking sediment type (biogenous vs. terrigenous), elevation, and human activity to identify vulnerability hotspots, offering a tool in current Philippine coastal management.

Keywords: coastal erosion, biogenous sediments, human impact, geospatial analysis, adaptive governance



Natural Edible Coating from Seaweed and Lemongrass Essential Oil (LEO) for Extended Shelf Life of Tomatoes (*Solanum lycopersicum*)

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Approximately three million Filipino households experienced hunger in the fourth quarter of 2022 according to a Social Weather Stations (SWS) survey released in 2023. Ironically, an estimated 1,717 metric tons of food are discarded daily in the Philippines, with vegetables identified as one of the top two most wasted food items based on the study by DOST-FNRI in 2023. This wastage is primarily attributed to the rapid spoilage of vegetables. This study explores using four types of dried seaweeds as edible coatings to extend the shelf life of farm produce. Experimental factors such as seaweed type, seaweed and lemongrass essential oil (LEO) concentrations, temperature and coating methods, were optimized to establish the best preservation conditions. Among the four seaweeds commonly found in Tablas, Romblon, *Kappaphycus alvarezii* (locally known as “kulot”) proved most effective, particularly for preserving tomatoes. The optimal formulation consisted of 30g of “kulot” and 3 mL of LEO in 550 mL of water. The seaweed gel was applied three times to tomatoes using the dipping method at 31-35°C. Tomatoes coated with seaweed gel and LEO showed a significantly extended shelf life along and improved quality compared to uncoated tomatoes. This method has the potential to be applied to other farm produce, offering a practical solution to extend shelf life and reduce food waste.

Keywords: encapsulation; antimicrobials; antioxidant; synergy; edible coating



Evaluation of the Potential Antidiabetic Properties of Narra (*Pterocarpus Indicus* Willd.) Leaves Ethanolic Extract in Type 2 Diabetes Mellitus Using *Caenorhabditis elegans* as a Model Organism

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Type 2 Diabetes Mellitus (T2DM) remains a global health issue, particularly in the Philippines, where it is highly prevalent. Due to its insulin resistance and elevated blood glucose levels, T2DM is commonly managed with pharmacological agents that often carry undesirable side effects. This led to interest in alternative treatments. This study aimed to evaluate the antidiabetic potential of Narra (*Pterocarpus indicus* Willd) leaves ethanolic extract (NEE) using *Caenorhabditis elegans* as a model organism. The extract was obtained through ethanolic extraction using a rotary evaporator and tested at 0.1 $\mu\text{g/ml}$ and 5 $\mu\text{g/ml}$ in 0.5% ethanol, with negative and positive controls. Experimental assays included oxidative stress resistance, thermal stress resistance, and lifespan assays. Results indicated that NEE may have extended the mean lifespan of *C. elegans*, however the effect was not statistically significant at $p > 0.05$. Among the concentrations tested, 0.1 $\mu\text{g/ml}$ yielded the greatest increase in lifespan compared to the positive control. However, NEE-treated worms exhibited 0% survival under oxidative stress (H_2O_2 exposure), indicating no protective effect against oxidative stress. Similarly, thermal stress resistance showed no significant improvement across treated and control groups. Statistical analysis using the Kaplan-Meier estimator in OASIS 2 and One-Way ANOVA confirmed these outcomes. These findings suggest that while NEE may support lifespan extension, it does not enhance stress resistance, suggesting further investigation of its isolated phytochemical compounds and testing in mammalian models with higher NEE concentrations to explore its potential as a plant-based antidiabetic therapy.

Keywords: Antidiabetic; *Caenorhabditis elegans*; Lifespan; Narra; Oxidative; Thermal



Optimization of Genomic DNA Extraction Protocol for *Nepenthes graciliflora* in Jun Carlo, San Andres, Romblon, Philippines

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The Philippines is home to endemic plants like *Nepenthes graciliflora*, the most widespread species of pitcher plant in the country. However, there are limited studies on its diversity. In order to streamline genomic studies and yield the best possible extracted DNA, this study aims to optimize the DNA extraction of *N. graciliflora*. Nine combinations of lysis buffers were used. DNA yield was quantified using UV Vis spectrophotometer, and quality was visualized assessed via agarose gel electrophoresis and A260/A280 ratio, respectively. With the two trials, three out of nine solutions showed potential success in obtaining good DNA quality for *N. graciliflora* while the rest showed impurities, presence of RNA, and degradation. Morphological assessment confirmed the species present at the site as *N. graciliflora*. Optimization of DNA extraction revealed that combinations CD, C1, and C6 yielded high-quality *N. graciliflora* DNA, while 1% CTAB resulted in degradation due to the plant's polysaccharide content. This study contributes to Philippine *Nepenthes* spp. literature and provides a foundation for future genetic research on endemic species in Romblon. This study serves as a stepping stone for future genetic diversity studies crucial for species preservation, underscoring the necessity to raise awareness among local government units and stakeholders in biodiversity conservation.

Keywords: Agarose Gel Electrophoresis; Genomic DNA; Morphology; *Nepenthes*; Optimization; UV Vis Spectrophotometer



Assessing the Accumulation of and in the Sediments, Roots, and Leaves of *Rhizophora apiculata* Collected from Batiano-Poctoy Port, Odiongan, Romblon, Philippines

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Mangroves are vital for coastal protection, yet they are increasingly threatened by heavy metal pollution, especially from sources such as antifouling paints. This study examines the accumulation of copper (Cu) and zinc (Zn) in the sediments, roots, and leaves of *Rhizophora apiculata* in Batiano-Poctoy Port, Odiongan, Romblon, Philippines. This coastal area is exposed to contamination from nearby maritime activities. Ultraviolet-visible (UV-Vis) spectroscopy was employed to analyze metal concentrations, and bioconcentration (BCF) and translocation (TF) factors were calculated to assess the plant's capacity for metal uptake and movement. The results revealed that the highest concentrations of Cu and Zn were found in the roots (161.858 ± 4.895 mg/kg for Cu and 44.329 ± 3.054 mg/kg for Zn), followed by sediments (147.884 ± 17.433 mg/kg for Cu and 39.563 ± 11.309 mg/kg for Zn), and leaves (131.783 ± 29.494 mg/kg for Cu and 34.564 ± 4.430 mg/kg for Zn). The BCF values for Cu (1.094) and Zn (1.120) indicated effective metal accumulation in the roots, while the TF values for Cu (0.814) and Zn (0.780) suggested limited metal translocation to the leaves, reflecting a phytostabilization process. A one-way analysis of variance (ANOVA) showed no significant differences ($p = 0.05$) in metal concentrations across the sediment, root, and leaf samples. These results highlight *R. apiculata*'s potential role in trapping heavy metals, contributing to pollution control in coastal environments. The findings also stress the importance of mangrove conservation and propose *R. apiculata* as a promising phytoremediation tool for managing heavy metal contamination in coastal ecosystems.

Keywords: Antifouling paints; Bioconcentration factor (BCF); Heavy metal pollution; Mangroves; Phytoremediation; *Rhizophora apiculata*.



Extraction and Characterization of Total Phenolic Content, Total Flavonoid Content, and Antioxidant Activity of *Stachytarpheta jamaicensis* (Kandikandilaan) Flower

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Oxidative stress plays a crucial role in the development of neurodegenerative diseases and the decline of food quality, both of which present major public health concerns. While many studies have focused on antioxidants, the bioactive potential of the flowers of non-native, locally available plants remain unexplored. This study investigates the antioxidant properties of *Stachytarpheta jamaicensis* flowers, locally known as Kandikandilaan, collected from Sitio Malapantao, Barangay Camandag, Looc, Romblon. The research aimed to evaluate the total phenolic content (TPC), total flavonoid content (TFC), and antioxidant activity of the plant extract. The TPC was determined using the Folin–Ciocalteu method, while the TFC was measured through the aluminum chloride colorimetric assay. Antioxidant activity was assessed via the DPPH free radical scavenging assay. Results revealed that the flower extract contained 0.91 ± 0.33 mg GAE/g of phenolic compounds and 3.11 ± 0.59 mg QE/g of flavonoids. Additionally, it demonstrated significant antioxidant activity, with an IC₅₀ value of 61.66 μ g/mL. These findings indicate that *Stachytarpheta jamaicensis* possesses notable antioxidant potential, supporting its potential therapeutic applications in managing oxidative stress-related conditions. The study highlights the importance of exploring the ornamental flora for their pharmacological and nutraceutical value. As interest in natural health products grows, this research encourages further investigation into the medicinal properties of known Philippine plants, which may lead to the development of novel, sustainable health interventions and natural remedies addressing public health issues.

Keywords: Kandikandilaan, *Stachytarpheta jamaicensis*, antioxidant activity, TPC, TFC, DPPH, phytochemical



Water Quality Assessment of Poctoy-Dapawan River using CCME WQI

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Rivers play a vital role in sustaining biodiversity, ecological balance, and community livelihoods. This study aims to assess the water quality of the Poctoy-Dapawan River in Odiongan, Romblon. Water samples were collected from three subsampling stations (upstream, midstream, and downstream) using grab sampling at three-month intervals. Parameters analyzed included temperature, total suspended solids, biochemical oxygen demand, dissolved oxygen, nitrate, phosphate, pH, and fecal coliform, based on DAO 2016-08 of the Department of Environment and Natural Resources (DENR) for Class C water bodies, with consideration of its recent version DAO 2021-19, and the Canadian Council of Ministers of the Environment Water Quality Index (CCME-WQI) was used to calculate a single index score from the measured values. Results showed that the Poctoy-Dapawan River exhibits marginal water quality (CCME-WQI score of 45.31), indicating possible pollution due to agricultural runoff, domestic wastewater, and human activities. Elevated biochemical oxygen demand and total suspended solids suggest stress on aquatic ecosystems. The most significant exceedance was found in chloride concentrations, where values at downstream locations significantly increased to 9,450 mg/L, far exceeding the DENR standard. Recommendations include broader water quality assessments in Odiongan, more frequent and extended sampling, and comprehensive testing. This research highlights the impact of anthropogenic activities, including agriculture and tourism, on the river's water quality. By providing a baseline for future water quality monitoring, it offers valuable data for the development of management strategies to preserve the river's ecosystem.

Keywords: Anthropogenic activities, aquatic biodiversity, CCME-WQI, water quality parameters, sustainability, water quality assessment, water quality index



Development of Polyhydroxyalkanoate (PHA)-Like Bioplastic Film through Incorporation of Lipids from Microalgae (*Nannochloropsis oculata*) into a Gelatin Matrix

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Plastic pollution continues to be a significant global environmental issue, largely due to the persistence of petroleum-based plastics. This study explores the development and biodegradability of bioplastic films derived from *Nannochloropsis oculata*, a lipid-rich microalga, as a sustainable alternative. Lipids were extracted using the Bligh and Dyer method and incorporated into a gelatin-glycerin matrix to formulate two types of bioplastic films: lipid-infused and lipid-free. The biodegradability of both film types was assessed through soil burial and aquatic degradation tests over a five-week period, with weight loss as the primary indicator. Water resistance was also evaluated. Results revealed that the lipid-free control films degraded completely within two days in both soil and water, whereas lipid-infused films showed progressive mass loss, with statistically significant degradation observed weekly. By Week 5, the soil-buried films lost an average of 0.388 g, and those in water lost 0.1794 g. T-tests confirmed significant differences between the weekly masses and initial weights ($p < 0.05$). These findings suggest that incorporating lipids from *Nannochloropsis oculata* enhances the biodegradability of bioplastics, particularly in aquatic environments, where the lipid content supports longer-term degradation. This study highlights the potential of algae-derived bioplastics as eco-friendly alternatives to conventional plastics, offering an approach that avoids reliance on food crops for bioplastic production. Future research should focus on optimizing the film formulations to improve mechanical properties while maintaining strong environmental performance, with potential for broader industrial applications.

Keywords: algae, lipids, bioplastic, biodegradability, PHA, plastics



Assessment of Ethnomedicinal Knowledge and Practices among Different Age Groups in Mayha, Odiongan, Romblon

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This study explored the ethnomedicinal knowledge and practices among various age groups in Mayha, Odiongan. Data were collected through surveys and interviews involving 100 randomly selected participants. Each participant was asked about the types of medicinal plants they commonly use, their methods of preparation and application, and their perspectives on the effectiveness of traditional medicine compared to modern healthcare practices. To analyze the differences in ethnomedicinal knowledge, the researchers employed a One-Way ANOVA to determine whether there were significant variations. The results revealed several commonly used medicinal plants across all age groups, including Bayabas, Oregano, Luya, Lagundi, and Sambong. Younger respondents (ages 12–35) favored plants such as Tawatawa, Aloe Vera, Helba Maria, and Caimito, typically for treating minor health issues and for skincare. In contrast, those aged 36 and above preferred plants like Turmeric, Marigold, Viba, Malunggay, Banaba, and Guyabano, often used in managing chronic ailments. The most common practices included *iniinom* (drinking) and *pinapahid sa katawan* (applying on the body). Although plant preferences and usage varied by age, ANOVA analysis showed no statistically significant difference in overall perceptions of traditional medicine ($p = 0.5226$), indicating shared beliefs regarding its effectiveness, safety, and role in healthcare. This study highlights the cultural significance and practical value of traditional medicine in the community. Across all age groups, respondents emphasized its affordability, accessibility, and effectiveness. These findings support the idea that integrating ethnomedicinal practices into formal healthcare could foster a more inclusive and culturally grounded medical system.

Keywords: ethnomedicine, age groups, indigenous knowledge



Grain Size and Composition of Coastal Sediments in San Agustin, Romblon, Philippines: Spatial Implications for Coastal Management

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Understanding coastal sediment characteristics is essential for managing shoreline stability, ecosystem health, and coastal development. By examining grain size and composition of sediments from 15 barangays of San Agustin, Romblon, this research provides an intertidal coastal sediments study to discuss climate resilience and sustainable coastal management. Results showed notable spatial variation: Poblacion showed the coarsest biogenous (carbonate) sediments (0.865 mm, coarse sand), suggestive of high-energy wave conditions, followed by Cawayan (0.624 mm, coarse sand; mixed terrigenous-carbonate) and Bachawan (0.525 mm, coarse sand; mixed). Low-energy zones were dominated by finer sediments; biogenous (carbonate) sands were common in reef-proximal areas (e.g., Binongaan: 0.151 mm, Dona Juana: 0.218 mm) and mixed terrigenous-biogenous sands in transitional systems (e.g., Sugod: 0.130 mm, Camantaya: 0.183 mm). This study offers new insights for forecasting erosion risks and habitat vulnerability by means of grain-size analysis (Φ) and source classification. The results directly respond to national priorities by providing long-term solutions for climate adaptation, such as giving top priority for artificial reef deployment in carbonate-rich zones (e.g., Poblacion) and sediment nourishment in mixed-terrigenous areas (e.g., Cabulotan). Targeted interventions help resource allocation expenses by 25–30% socio-economically while promoting multi-sector cooperation through data-sharing platforms among local governments, non-government, and academics. Decision-support tools for real-time sediment budgeting offer commercial potential scalable to other tropical coastlines. This paper stimulates more study on carbonate system resilience under acidification by linking sediment dynamics to energy regimes and ecosystem health, therefore enhancing service delivery to vulnerable coastal communities via participatory adaptation planning.

Keywords: Coastal sediments, biogenous carbonates, terrigenous input, climate adaptation, resource optimization



Composition, Abundance, and Sources of Anthropogenic Marine Debris on the Seashore of Barangay Tabing Dagat to Barangay Ligaya, Odiongan, Romblon

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Anthropogenic marine debris (AMD) is a common pollutant in the urban environment and public places such as beaches, which has serious health and economic consequences. This study assessed the composition, abundance, and distribution of AMD in the coastline along Barangay Tabing Dagat and Barangay Ligaya. Transects with 3m x 3m quadrants were measured from the edge of the high tide line of the water. The observed AMDs were collected once a month for six months and were categorized as plastics, glass bottles, rubber, paper, metals, and clothes. The AMDs were counted and weighed in each barangay. Results show that plastic constitutes the majority with 78.06% of AMDs, particularly PET bottles (42.62%). Glass bottles accounted for the highest percentage by weight at 43.17%, while clothes were the least represented. No significant differences in densities in terms of number of items and weight were found between Tabing Dagat 0.0456; $t = 1.89$, and Ligaya 0.3857; $t = 2$. With regards to the types of AMD, there was a significant difference between groups, where the plastic groups differed significantly from other AMD classes. AMD accumulated at an average rate of 7.17 pcs/day. Despite the amount of AMD collected from the two barangays, an overall rating of 0.26 was obtained and is still considered as “very clean” based on the Coastal Clean Index. The majority of AMD comes from land-based activities, and thus, community engagement through awareness campaigns, clean-ups, and education fosters responsible waste disposal and effective waste management.

Keywords: pollution, agglomerative nesting, anthropogenic marine debris, coastal management, composition.



Identification of Antioxidant Properties in *Hoya cumingiana decne* Using Thin-Layer Chromatography: Optimized Normal Phase-TLC Evaluation

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The increasing prevalence of antibiotic resistance and oxidative stress-related diseases has intensified the search for alternative sources of bioactive compounds with antioxidant properties. This study explores the potential of *Hoya cumingiana decne* as a source of such compounds using Thin-Layer Chromatography (TLC), with a focus on optimizing extraction and analytical procedures. Plant material was subjected to ethanol maceration, followed by concentration using a rotary evaporator to obtain a crude extract. Three mobile phase systems were evaluated—60:30:10, 70:20:10, and 50:40:10 ratios of Ethyl Acetate:Methanol:Distilled Water—with the latter found most effective in generating distinct, reproducible chromatographic profiles. Developed TLC plates were visualized under UV light at 256 nm and 365 nm. ImageJ software was utilized to determine Retention Factor (R_f) values and analyze spot intensities. Preliminary antioxidant screening revealed several active zones indicative of antioxidant constituents based on color intensity and retention behavior. These initial findings underscore the presence of antioxidant compounds in *Hoya cumingiana decne*. The outcomes of this research contribute to the growing body of knowledge in ethnopharmacology and natural product-based drug discovery, highlighting the relevance of lesser-known Philippine endemic species in the development of alternative therapeutic agents.

Keywords: Hoya Cumingiana Decne, Hoya sp., thin-layer chromatography, direct bioautography, antioxidant properties, ethnopharmacology



Shelf-Life Extension and Packaging Innovation of Sarsa: Effect of Chitin as Natural Preservative to Local Dish of Romblon, Philippines

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This research explored how food-grade chitin, a natural compound derived from chitosan, can help extend the shelf life and improve the quality of Sarsa, a well-loved traditional dish from Romblon, Philippines. The study compared the conventional way of preparing Sarsa with versions enhanced by different levels of chitin (3%, 5%, and 7%). Various tests were carried out to observe changes in the dish's physical condition, microbial growth, and sensory qualities. Physical data were recorded using monitoring tools, while taste, texture, appearance, color, and odor were rated through surveys using a 5-point scale. The results showed that using chitin—especially at 5% and 7%—helped retain the dish's texture and appearance and reduced bacterial growth, even under warmer storage conditions. Sensory feedback also pointed to higher satisfaction levels, particularly among professionals who rated chitin-treated samples more favorably. Overall, the study highlights chitin's potential as a natural preservative that not only extends shelf life but also enhances the sensory experience of Sarsa, particularly when combined with glass jar packaging. This approach offers a valuable way to preserve and market traditional Filipino cuisine more effectively.

Keywords: sarsa, shelf-life extension, chitin, chitosan, natural preservative, sensory evaluation, microbial stability, packaging innovation, traditional dish



Assessment of Copper (Cu^{2+}) Contamination in Bongoy River, Odiongan, Utilizing Nypa Palm (*Nypa fruticans* Wurmb)

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Phytoremediation is an eco-friendly method that uses plants to remove or stabilize environmental pollutants, reducing ecological damage and health risks. One known plant species capable of phytoremediation is *Nypa fruticans* (Nipa Palm), which tolerates heavy metals such as nickel, cadmium, and zinc. In line with this capability, the study examined the potential of *Nypa fruticans* to remediate copper (Cu^{2+}) contamination in Bongoy River, Odiongan, Romblon, an area affected by human activities. A modified belt transect method was used to collect plant and soil samples, which were then processed through acid digestion and analyzed using UV-Vis spectroscopy to measure Cu^{2+} concentrations in roots, stems, leaves, and surrounding soil. Results indicated soil Cu^{2+} concentrations is at 168 ± 6.27 mg/kg to 182 ± 6.56 mg/kg across quadrats with bio-transfer factor (BTF) at 1.89, and the translocation factor (TF) exceeding 1 in all quadrats. This confirms that *N. fruticans* can effectively accumulate and translocate Cu^{2+} , making it a potential hyperaccumulator. These findings suggest that *N. fruticans* holds promise as a sustainable, cost-effective solution for mitigating copper contamination in tropical river ecosystems. The study contributes to advancing environmental science by utilizing native plant species in ecosystem rehabilitation. Additionally, the application of phytoremediation has potential socio-economic benefits by improving local water quality, supporting community health, and enhancing long-term resilience in affected regions.

Keywords: phytoremediation, *Nypa fruticans*, copper contamination, hyperaccumulator, translocation factor



Forest Biodiversity Assessment in Santa Fe, Romblon

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The Philippines, with over 3,600 native tree species, holds a critical role in preserving biodiversity, yet faces rapid declines due to climate change and human activities. Assessing biodiversity levels is essential to identify species presence, support ecosystem health, and guide conservation strategies. This study focused on evaluating species richness, abundance, and diversity of trees, saplings, shrubs, vines, and seedlings in the forests of Santa Fe, Romblon. Using two widely accepted methods the quadrat method (5x5 m plots) for smaller plants and the 0.2 km line transect method for trees species were identified, counted, and measured, with tree diameters recorded at breast height (DBH). The Importance Value Index (IVI) was used to analyze richness and distribution. Findings revealed 17 species in the sampled area, suggesting notable species richness, and also highlighted the presence of rare and potentially invasive species that may impact ecosystem balance. These results emphasize the rich biodiversity of Santa Fe's forests and the need for ongoing monitoring and conservation to sustain ecosystem integrity.

Keywords: Forest biodiversity, species richness, importance value index, line transect sampling, quadrat sampling



Optimization of Thin-Layer Chromatography in detection of Steroids,
Phenols, and Flavonoids in Sea Urchin Gonads from Binucot beach, Ferrol, Romblon

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Binucot beach, situated in the town of Ferrol, is recognized as one of the most well-known beaches in the province of Romblon. But not only that, it is also known for its marine biodiversity, including the presence of various sea urchin species. This study explores the potential of *Echinometra mathaei* as a natural source of bioactive active compounds in pharmacological applications. Methanol extraction, a preliminary step in extracting the compounds from the sea urchins was performed, followed by solvent separation with the use of a rotary evaporator. The extracts were then analyzed through Thin-Layer Chromatography (TLC), which is utilized to assess the presence of bioactive compounds steroids, phenols, and flavonoids. The mobile phase was then optimized, and spray reagents were selected to facilitate compound identification. Spray reagents with positive reaction to the extract will result in visible color change with and without the aid of UV-Light. The 10% Antimony (III) Chloride in Chloroform was used as a spray reagent to detect the presence of steroids with the aid of UV-Light. Meanwhile, a mixture of 1% Potassium Ferricyanide and 1% Ferric Chloride Anhydrous was used as a spray reagent to detect flavonoids and phenols in natural light. The analysis determined the presence of steroids, phenols, and flavonoids in the extracts. The said compounds from previous studies have been established to have anti-cancer, anti-inflammatory, and antioxidant properties which suggest that Binucot Beach may serve as a promising source of bioactive compounds to use for the development of the pharmaceutical field.

Keywords: bioactive compounds, *Echinometra mathaei*, marine biodiversity, Methanol extraction; pharmacological applications, thin-Layer chromatography



Assessment of Ethnomedicinal Knowledge and Practices among different age groups in Brgy. Dapawan, Odiongan, Romblon Philippines

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As we face our fast-paced modernization, preserving ethnomedicinal practices have become more important than ever as it results in gaps in our ethnomedicinal knowledge. To assess the ethnomedicinal knowledge and practices among different age groups, this study was conducted in Barangay Dapawan, Odiongan, Romblon, Philippines. This mixed-method research employed stratified and referral sampling techniques to gather data from 131 respondents, focusing on the most common plants, practices, and conditions treated with ethnomedicine. A structured questionnaire assessed the participants' knowledge, attitudes, and practices toward ethnomedicine. The study used descriptive statistics and one-way Analysis of Variance (ANOVA) to analyze differences among age groups. Results revealed that older individuals (60 and above) demonstrated significantly higher ethnomedicinal knowledge and more favorable attitudes compared to younger respondents (12-35 years old). Oregano, calamansi, and ginger were among the most commonly identified ethnomedicinal plants, primarily used to treat common conditions such as cough, colds, and digestive problems. Furthermore, boiling of plants and direct application were the most recognized preparation and application methods. These findings show a generational gap in ethnomedicinal knowledge, showing the importance of preserving traditional healthcare practices for future integration into community health strategies.

Keywords: ethnomedicine, traditional healing practices, knowledge across age groups, Barangay Dapawan, healthcare integration



Heavy Metal Concentration of Lead (II), Copper (II), and Zinc (II), of Kabulihan Sanitary Landfill Soil

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Heavy metals such as lead (Pb), copper (Cu), and zinc (Zn) are naturally occurring but can be highly toxic at low concentrations. Improper waste management can lead to the release into the environment, particularly through landfill leachate. The Kabulihan Sanitary Landfill in Malay, Aklan currently lacks baseline data on heavy metal contamination in its soil. This study aimed to assess concentrations of Pb(II), Cu(II), and Zn(II) in the landfill soil and compare them with World Health Organization (WHO, 1996) permissible limits. Soil samples were collected through random sampling and prepared following International Organization for Standardization (ISO) standards. Samples were digested using aqua regia and analyzed using ultraviolet-visible (UV-Vis) spectrophotometry, with optimized detection wavelengths for each metal: Zn (971 nm), Cu (970 nm), and Pb (670 nm). Standard solutions were used to calibrate the instrument. The results showed mean concentrations of 85.3 ppm for Zn, 45.3 ppm for Cu, and 168 ppm for Pb. Statistical analysis using a one-sample t-test in Jamovi Cloud ver. 2.6.44 revealed that Zn was significantly below the 300 ppm limit ($p < 0.001$), Cu was above the 30 ppm limit but not statistically significant ($p = 0.125$), and Pb significantly exceeded the 100 ppm limit ($p = 0.032$). These findings suggest potential contamination by lead at the site, highlighting a need for further investigation and monitoring. This preliminary assessment supports the importance of broader environmental monitoring.

Keywords: heavy metal contamination, landfill soil, lead toxicity, UV-Vis spectrophotometry, environmental monitoring

EDI

ENGINEERING, DEVELOPMENT AND INNOVATION



I-Support: A Web-Based Mental Health Support System For College Students

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Like many academic institutions, students in colleges today suffer from numerous mental health concerns, ranging from academic burdens, personal factors, social pressures, uncertainty about the future, and financial stress, all of which remain unaddressed. Students often try to cope by talking to friends or family, but this has its pitfalls: issues of confidentiality, lack of understanding, or inadequate emotional support. This study aimed to develop i-Support, a web-based mental health care system that offers stress self-assessment, educational videos, a module, and a referral booking feature for consulting with school guidance personnel. Using the Agile Software Development Life Cycle (SDLC) and convenience sampling, the system was evaluated by 200 college students. Findings showed that younger students, particularly first-year and male students, are more vulnerable to mental health issues. The system addressed the need for a more accessible and supportive platform. With a high acceptability rating (weighted mean =4.54) and compliance with ISO/IEC 25010:2011 standards, i-Support was found to be effective, user-friendly, and reliable. It offers a practical digital solution that supports student mental well-being and contributes to SDG 3: Good Health and Well-being.

Keywords: mental health support, decision support, web-based system, self-assessment, referral booking



AZAlert (Accident Zone Alert) an Android Application for Accident-Prone Area Awareness and Prevention in Odiongan

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Road accident have become a significant concern in the Philippines particularly in Odiongan, Romblon. The emergency services contribute to avoid fatal injuries or death. In this regard, the proponent come up with the solution of designing and developing an android application for accident prone area awareness and prevention in Odiongan called AZAlert. The primary goal of this application is to develop an application that will raise awareness and to prevent accident-prone areas in Odiongan. The AZAlert application was developed using Agile Methodology, using the Google Map for map visualization of accident-prone areas, voice alert system, and an emergency hotline to redirect call if emergency happened. Conditionally, the app provides a road Safety tips, Signages and Violations penalties. The system testing used the ISO25010 standard, and user acceptance was evaluated the total number of respondents were 37, specifically 25(twenty-five) riders on user acceptance testing and 6 developers on unit testing, and 6 testers in system testing. The total weighted means was 4.71, meaning that the proponents STRONGLY AGREE that the application is functional, reliable, efficient, usable, and maintainable. The AZAlert address the gap in road safety solutions by developing a user-friendly design. The AZAlert proved to be effective tools for preventing road accidents in Odiongan. Future researchers could expand the coverage of the AZAlert with the advanced AI-driven hazard predictions and enhance offline capabilities.

Keywords: Road accident prevention, Mobile application development, Accident-prone area mapping, Emergency response system and Road safety awareness



VanBlast: A Mobile-Based Online Van Booking Application for MIMAROPA Transport Cooperative in Tablas Island

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Reliable transportation is essential for convenience, facilitating interactions, delivering goods, and sustaining a thriving economy. Technological advancements have revolutionized the transportation industry, introducing online ticket booking applications. However, the MIMAROPA Transport Cooperative lacks a centralized system for managing passenger bookings, relying on inefficient manual methods like calls and text messages, which are prone to errors and miscommunication. Drivers face challenges in keeping track of multiple booking requests sent through group chats, leading to confusion and missed updates. Passengers experience inconvenience due to excessive communication from drivers, including repeated calls and messages for updates, which can be disruptive. To address these challenges, the proponents designed and developed VanBlast, a mobile application for online van booking services. The app allows passengers to conveniently book rides while enabling drivers to manage bookings efficiently. The project was developed using the Agile Method, ensuring flexibility and collaboration throughout development. The application's success in enhancing booking efficiency was validated through comprehensive testing. Unit Testing showed a "PASSED" result across all scenarios, confirming expected functionality. User Acceptance Testing, conducted with 21 respondents—including passengers, drivers, and administrators—verified that the system operated as intended. System Testing, based on the ISO/IEC 25010:2011 Software Product Quality Model, evaluated eight quality attributes: Functional Suitability (4.79), Reliability (4.55), Performance Efficiency (4.55), Usability (4.79), Maintainability (4.66), Portability (4.66), Security (4.74), and Compatibility (4.72), all with high ratings. VanBlast significantly improved booking efficiency and provided a seamless, user-friendly platform. Future enhancements include GPS integration for ride tracking and GCash API for streamlined payments.

Keywords: Mobile application, van booking, agile methodology, transportation, ISO/IEC 25010



Assessment of the Mechanical Properties of Glycerin-Plasticized Acrylonitrile Butadiene Styrene (ABS) Composite Reinforced with Marble Dust for 3D Printing Applications

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Three-dimensional (3D) printing has changed manufacturing by allowing the easy production of complex parts with less material waste. However, while Polylactic Acid (PLA) is the most popular material used today, it has limits in terms of strength and chemical resistance. To offer better options and promote sustainability, this study explored using marble dust, an abundant waste material from Romblon, Philippines, in a new composite material. Acrylonitrile Butadiene Styrene (ABS) was combined with marble dust as filler and glycerin as a plasticizer to improve flexibility. ABS composites were made with consistent marble dust content (5%) and varying glycerin content (5%, 10%, and 15%) and were tested for changes in structure and strength. Results showed that increasing glycerin content led to the formation of more air pockets, reducing the material's density. The density dropped from 1.1930 g/cm³, while the void content increased from 2.059% to 14.874%. Tensile strength also decreased with more glycerin, with maximum stress ranging from 5.81 to 13.16 MPa. These results suggest that while glycerin improves flexibility and tensile strength, it weakens the material. Future research is recommended to explore optimal glycerin levels or alternative plasticizers, and to treat marble dust to improve its bond with ABS. This research contributes to sustainable materials development in 3D printing and adds value to local waste in the Philippines.

Keywords: 3D Printing, Acrylonitrile Butadiene Styrene, composite, Glycerin, marble dust, plasticizer



AI Usage vs. Cheating Perception: A Case Study Utilizing Simple KMeans Clustering Technique

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Artificial Intelligence in education transforms how students learn and teachers teach, offering personalized learning tools, streamlining administrative tasks, and enhancing student engagement. We analyzed data from multiple surveys from 2023 to 2025 on AI usage in education across diverse students from the U.S, Canada, the UK, Australia, etc. This study utilizes data mining techniques, specifically the SimpleKMeans clustering algorithm in Weka, to investigate the perception of AI usage among students and its correlation with academic dishonesty. The SimpleKMeans was used to cluster students based on their AI usage patterns and cheating perception. Furthermore, the result revealed that student AI usage paints a nuanced picture, with varying perceptions of academic integrity across different demographic populations. While a significant portion of students across multiple clusters consider AI use as cheating, the actual usage rates vary considerably, suggesting diverse factors influence AI adoption. The choice of the better cluster depends entirely on the specific research question, but clusters 2 and 4 offer valuable insights into both high AI usage and differing attitudes towards AI in academic settings. The greater the number of clusters the dataset is divided into, the more we see the diversities and variations up close, laying out the specific details in every cluster. Above all else, the first trial with the least number of clusters provided the best and most direct results.

Keywords: Artificial Intelligence in education, Academic dishonesty, Data mining, SimpleKMeans clustering and Student AI usage patterns



An Analysis of RSU's Student Health Service Utilization Across College and Campuses Using the J48 Algorithm

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Student health concerns, both physical and mental, are growing challenges in academic institutions. This study focuses on the physical health complaints and service utilization trends among students across various academic programs and campuses using institutional data. By applying the J48 classification algorithm in Weka, we aim to uncover patterns and associations between student health issues, the number of students affected, and institutional service responses. The dataset, comprising 1,000 entries, includes variables such as complaint/diagnosis, college, number of students, services availed, and campus. Analysis revealed that certain diagnoses—most notably fever, hypertension, and respiratory conditions—were consistently prevalent across campuses. These complaints showed varying degrees of occurrence depending on the student's college and campus, with colleges such as the College of Education and the College of Business Administration reporting the highest frequency of complaints. Services like medication and the issuance of medical certificates were among the most commonly availed, with peaks observed in months aligned with academic pressure points such as examinations. The San Fernando campus emerged as the location with the highest volume of service utilization, while campuses like Cajidiocan showed distinct health issue profiles. The J48 decision tree illustrated clear splits based on college and campus, highlighting predictive patterns in student health concerns. These findings underscore the importance of proactive health monitoring and resource allocation tailored to each campus and college population. Institutional health services can benefit from this analysis by implementing targeted health campaigns, adjusting resource distribution, and establishing preventive strategies. Moreover, the insights gained can help ensure that medications and medical supplies are utilized effectively, reducing waste and improving the efficiency of health service delivery. Further research is recommended to explore additional behavioral or environmental factors influencing student health, paving the way for more comprehensive support systems that enhance student wellness and academic performance.

Keywords: student health, physical complaints, service utilization, academic courses, campus health trends



Design and Development of Arrowroot Juice Extractor

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This study was conducted to design and develop an arrowroot juice extractor machine. It presents a comprehensive analysis covering the design, construction, and performance evaluation of the extractor. The machine was constructed using components such as a motor, speed reducer, auger, shafting, V-belt, pulley, and a structural frame. It was tested to assess its operational performance through a series of controlled trials. Data collection focused on several parameters, like arrowroot weight, input capacity, juice recovery, arrowroot meal recovery, extraction rate, moisture content, potential juice content, and extraction efficiency. The result obtained from testing phases revealed the average input capacity is 16.32 kg/hr, with an average juice recovery of 63.73%. Meanwhile, the average arrowroot meal recovery is 33.085%, with an average extraction rate of 10.422 kg/hr. The arrowroot juice extractor has an average moisture content of 66.67%, with an average potential juice content of 4.685 kilograms. The average machine extraction efficiency was calculated at 95.355%. Beyond the technical results, this research offers valuable benefits for the small-scale agricultural sector. It helps reduce the manual labor traditionally, making the process less time-consuming and more efficient for farmers. This study plays a significant role in advancing arrowroot processing technology. It provides practical implications for improving agricultural productivity and sustainability. Further research is recommended to improve the design and enhance the performance of the arrowroot juice extractor. Overall, this innovation contributes to the broader goal of promoting arrowroot as a viable product in the agricultural business sector.

Keywords: Arrowroot juice extractor, Machine design and development, Extraction efficiency, Agricultural processing technology and Small-scale farming equipment



Tourism Classification Analysis in Alcantara: A Data Mining Approach Using J48 Decision Tree in WEKA

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Tourism is important for the local economy of Alcantara. This study uses data mining, specifically the J48 algorithm in WEKA, to find out when most tourists visit and what their characteristics are during those times. The results show that the number of tourists is highest in April, May, and December. April and May had more local tourists, while December had more foreign visitors. It was also found that most local tourists were women, and most international tourists were men. Many domestic tourists came from NCR and Region IV-B, while international tourists often came from the USA, Germany, and Japan. These findings can help the local government plan better tourism activities and services during busy months. Future research can focus on using real-time data for even better planning.

Keywords: tourism seasonality, WEKA; data mining; J48; visitor trends; peak periods



Moonlight Creation: A Web Based Booking System for Events Suppliers and Freelancers

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This study introduced Moonlight Creation, a web-based booking system designed to optimize event planning in the Municipality of Romblon. The platform streamlines the process by organizing event suppliers and packages, enabling clients to easily schedule services. Simultaneously, it equips suppliers with tools to manage bookings and leverage client ratings efficiently. The agile Model was employed in the system's development, ensuring a flexible and adaptive approach to accommodate evolving requirements and improve workflow. The system was rigorously evaluated using the ISO/IEC 25010:2011 standard. It is revealed that 50 clients rated a weighted average score of 4.15, reflecting a “Strongly Agree” response, while 30 event suppliers and freelancers provided a commendable rating of 4.06. These findings align with the Sustainable Development Goals (SDG) 8, 9, and 17 by fostering inclusive economic growth, innovation, and collaboration. This system enhances productivity in the Municipality of Romblon's event industry by streamlining the booking process and enabling fair work opportunities for freelancers and suppliers (SDG 8). It promotes technological innovation (SDG 9) by introducing a digital platform that modernizes traditional event planning methods. Additionally, the platform strengthens partnerships (SDG 17) by connecting clients, freelancers, and suppliers, fostering a cohesive ecosystem for sustainable economic development. The results affirm Moonlight Creation’s potential to enhance event management for clients and suppliers, positioning it as a valuable tool for modernizing event planning in Romblon.

Keywords: Web-based event booking, event supplier, SDG8, SDG9, SDG17



Pulse-Based Regeneration of Capacitive Deionization using Sinusoidal Waves

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Capacitive deionization (CDI) is an emerging water treatment technique that uses electrochemical processes to remove salt ions from brackish water. Despite its energy efficiency, CDI suffers from long-term performance degradation due to electrode fouling and incomplete regeneration. This study introduces a pulse-based regeneration method using sinusoidal waveforms and evaluates its effectiveness relative to constant voltage regeneration. A full factorial experimental design was implemented to examine the influence of regeneration method, electrode material (graphite sheet and carbon felt), waveform type (pure sine vs. square wave), and frequency (30–70 Hz) on CDI performance. A custom-built CDI cell was assembled with recirculating flow to simulate real-world operation. TDS removal efficiency, energy consumption, and electrode fouling were analyzed using TDS meters, power calculations, and visual inspections. Results showed that sinusoidal regeneration improved ion desorption efficiency by up to 55% and significantly reduced fouling, especially when carbon felt electrodes were used at 50 Hz sine wave operation. Additionally, energy usage was lower in sinusoidal conditions due to smoother voltage transitions. These findings suggest that waveform-based regeneration offers substantial technical advantages and socio-economic benefits, particularly in regions facing water scarcity. The approach provides a scalable, energy-efficient enhancement to existing CDI systems and supports advances in sustainable desalination technology for both industrial and rural applications.

Keywords: Capacitive deionization, sinusoidal regeneration, electrode fouling, desalination, waveform



Unexplained Weight Gain: A Data Mining Study Using Logistic Model Tree (LMT) on Lifestyle and Behavioral Data

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This study examines the phenomenon of unexplained weight gain, with a focus on individuals who report consuming minimal amounts of food yet continue to experience increases in body weight. While it is often assumed that weight gain is primarily from the result of overeating, the findings of this research challenge that notion. The analysis centers on individuals who eat only once or twice per day but still encounter difficulties in maintaining or reducing their weight. Using the Obesity Dataset from Kaggle, the study employed data mining techniques, specifically the Logistic Model Tree (LMT) algorithm, to assess a range of lifestyle and behavioral variables, including physical activity, hydration practices, sleep quality, family medical history, and modes of transportation. The resulting model achieved an accuracy of 96.79 percent. It identified low levels of physical activity, insufficient vegetable consumption, and a family history of obesity as big factors in contributing to weight gain, even among those with restricted diets. These results prove that weighing not just about how much you eat it's about how you live. and suggest that effective weight management requires more than a reduction in food intake. Rather, it calls for a more comprehensive consideration of behavioral and lifestyle factors that may influence overall health outcomes.

Keywords: Unexplained weight gain, Logistic Model Tree (LMT), Lifestyle factors, Data mining and Obesity predictors

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Language Synergy: The Influence of Romblomanon Variants on the English Writing Fluency Among Bsed Students

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The study explored the intricate aspects of linguistic interaction between Romblomanon variants and English writing fluency among Bachelor of Secondary Education (BSEd) students from Cajidiocan and Magdiwang. The researchers sought to understand how these languages influenced each other and how they shaped the students themselves. Participants in the study included BSEd students from Cajidiocan and Magdiwang. Data were gathered by administering a Google form to the students’ group chats to identify respondents. The dependent variable in the study was English writing fluency, while the independent variable was Romblomanon variants. A score range was used to interpret the level of influence of Romblomanon variants on English writing fluency among BSEd students. The results indicated an even distribution of respondents from Cajidiocan and Magdiwang, with most students majoring in BSEd English and being in their first year. The study’s level of influence revealed that BSEd students demonstrated good English writing fluency, with a noteworthy impact of Romblomanon variants on their writing skills, particularly when grouped by municipality. These findings emphasize the positive influence of Romblomanon variants on enhancing English writing fluency among BSEd students. The study underscores the significance of incorporating linguistic diversity in language teaching to enhance fluency and proficiency levels of Romblomanon variants on English writing fluency among BSEd students was rated as moderately influential

Keywords: English Writing Fluency, Romblomanon Variants, Language



Sci-Spark Interactive Multimedia: Its Effect on Improving Grade 9 Students' Ability in Solving Physics Problem

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The field of science education faces notable challenges, particularly in fostering students' ability to solve complex problems in Physics. Traditional instructional approaches often prioritize theoretical understanding, which can hinder students' capacity to apply concepts to real-world situations. Additionally, the abstract nature of many Physics concepts can hinder student engagement and their ability to develop strong problem-solving skills. This action research investigates the effectiveness of Sci-Spark Interactive Multimedia, a mobile learning platform, in improving the problem-solving abilities of Grade 9 students compared to traditional teaching methods. Conducted at Ferrol National High School with a sample of 60 participants, the study employed a non-equivalent pretest-posttest quasi-experimental design. The experimental group engaged with the Sci-Spark Interactive Multimedia platform, while the control group received traditional instruction. Data analysis using mean comparison and t-tests revealed significant improvements in the post-test scores of both groups, with the experimental group showing a more substantial increase. These findings suggest that the Sci-Spark Interactive Multimedia platform is an effective teaching tool in improving students' problem-solving skills in Physics compared to traditional methods. This study contributes to ongoing discussions in science education by demonstrating the potential of interactive multimedia as an effective strategy, fostering deeper understanding and greater engagement, ultimately leading to improved academic outcomes for students.

Keywords: Sci-Spark, Interactive multimedia, traditional learning approach, physics problem-solving



Development and Validation of ‘Voice Train’ as an Instructional Manipulative in Teaching Active and Passive Voice

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This study aimed to develop and evaluate “Voice Train” an instructional manipulative designed to address the least mastered Grade 7 English competency: active and passive voice. The development was prompted by the lack of effective teaching tools and instructional materials available for this topic. This study utilized a descriptive-developmental research method guided by Talisayon and Vistro-Yu (1997) model for curriculum development. The initial evaluation involved six teachers and thirty students who assessed the material for curriculum alignment, while a separate group of twenty-five teachers conducted a formative evaluation. Revisions were made based on the evaluators’ feedback to enhance the effectiveness and usability of the material. The evaluators recommended proceeding to summative evaluation to further determine its effectiveness and suggested adapting the instructional manipulative into technology-based media to ensure broader accessibility and greater relevance for 21st-century learners. Finally, “Voice Train” is thus proposed for classroom use to strengthen the teaching and learning of active and passive voice.

Keywords: active voice, instructional manipulative, intervention, passive voice, Voice Train



Development and Validation of Writing Toolkits for English Composition

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This action research explored the challenges Grade 6 students face in transitioning from writing simple sentences to constructing coherent persuasive paragraphs. Conducted in ten elementary schools across Odiongan South and North Districts, Romblon, the study aimed to develop and validate Writing Toolkits for English Composition. These toolkits featured two components: Flashcards presenting debatable issues to foster critical thinking, and Manipulatives using dice to generate key elements for persuasive essay writing. Using a developmental research design, the study focused on creating instructional materials tailored to learners' needs. Quantitative data gathered from 10 Grade 6 English teachers via LRMDS-based surveys showed "Very Satisfactory" ratings in content, accuracy, and overall design. Notably, the materials scored high for reinforcing learning competencies ($M = 3.75$, $SD = 0.40$), engaging learners ($M = 3.80$), and providing accurate content ($M = 3.90$). The flashcards and manipulatives achieved mean scores of 3.75 ($SD = 0.40$) and 3.74 ($SD = 0.43$), respectively. Qualitative analysis offered insights for improvement, including enhancing visual clarity, font size, and material durability. The findings affirm that the Writing Toolkits effectively support the development of persuasive writing skills. The study underscores the impact of interactive learning tools on language instruction and recommends further research to expand content coverage and adapt the materials for broader learner diversity.

Keywords: Writing Toolkits, Persuasive Writing, Grade 6, Instructional Materials, English Composition



Design, Development, and Evaluation of Q-Card as a Game-Based Approach in Teaching and Learning Rational Number Operations

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Mastering operations on rational numbers is essential in mathematics education as it builds the foundational skills for higher-order concepts. Aligned with the Philippine K-12 curriculum, this competency supports learners in developing number sense and critical thinking skills outlined in the mathematics framework for Grades 4 to 10, however the problem is still evident in terms of its mastery. During the baseline assessment conducted at Romblon State University – Laboratory Science High School, significant gaps in students' mastery of rational number concepts were evident (40.77%) suggesting a low mastery level. To address this problem, the researchers created an interactive game-based approach (Q-Card) for teaching and learning rational numbers. The study employs a type I developmental research, focusing on the design, development, and evaluation of Q-Card as a game-based approach in teaching and learning operations for rational numbers. Additionally, the ADDIE model (Analysis, Design, Development, Evaluation, and Implementation) has served as the framework for structuring the instructional material. The result of the evaluation shows that the Q-Card game shows a high acceptance rate among the evaluators highlighting its significance in teaching and learning rational numbers. This suggests that the positive response from evaluators reinforces the potential of game-based instruction to complement traditional teaching methods. These findings support the incorporation of educational games into the curriculum as a viable strategy to improve motivation, retention, and academic performance in mathematics. Future research is needed to evaluate the long-term impact of Q-Card on student engagement through classroom instruction and experimentation.

Keywords: Rational Numbers, Game-Based Approach, Q-Card Game



Awareness and Perception Towards HIV Among Non-STEM Senior High School Students in Erhard Systems Technological Institute

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This study assessed the level of awareness and perception towards HIV among non-STEM senior high school students at Erhard Systems Technological Institute (ESTI). The research evaluated students' knowledge of basic HIV information, transmission, prevention, treatment and care, impact of stigma and discrimination, and susceptibility. Data was collected through surveys and analyzed using descriptive statistical methods to summarize key findings and identify patterns. The findings indicate that while most students (77%) possess a basic understanding of HIV, significant gaps and misconceptions persist. Only 23.5% correctly understood the difference between HIV and AIDS. A majority demonstrated understanding of asymptomatic transmission (63%), and primary transmission routes like semen, vaginal, and anal fluids (65%), and blood (52%). However, knowledge gaps were evident regarding transmission through breast milk (22%), and misconceptions about non-transmission routes like saliva (28%), urine (15%), and sweat (11%). While most students recognized unprotected sex as high-risk (80%), awareness of risks associated with sharing syringes/needles (18%) and breastfeeding (30%) was low. Regarding treatment and care, 63% understood the necessity of continued care, and 80% recognized the importance of medication adherence. Students showed ambivalence in interacting with HIV-positive peers (mean score: 2.9) but a higher willingness to defend against discrimination (mean score: 3.51). The study emphasizes the necessity of focused HIV education for non-STEM senior high students to address knowledge gaps and misconceptions, which is crucial for informed decisions, reduced stigma, and a supportive environment. The findings offer insights for educators, policymakers, and the community in developing effective public health interventions.

Keywords: HIV awareness, HIV perception, senior high school students, misconceptions, stigma



Awareness and Perception of Scholars from Philippine Science High School-MIMAROPA Region Campus about Human Immunodeficiency Virus (HIV) among Different Grade Levels

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Philippine Science High School – MIMAROPA Region Campus

Human Immunodeficiency Virus (HIV) remains a major health issue. The Philippines witnessed skyrocketing HIV cases, mostly among the youth aged 15-24. Romblon recorded 158 HIV cases since 2007, with 20 new cases reported from January to December 2024. Hence, the objective of this study is to assess HIV awareness and perception among scholars of PSHS-MRC, compare the difference in HIV awareness and perception, and identify misconceptions about HIV. Guided-response questionnaires were distributed to the respondents which utilized a modified questionnaire adapted from Carey and Schroeder (2002) with 22 dichotomous questions. The instrument had undergone reliability and validity tests to ensure the clarity and effectiveness. The data were analyzed using statistical treatment: mean, median, mode, range from highest & lowest, and standard deviation. The study revealed that not all scholars among different grade levels are aware based on overall scores using the questionnaire. There is also difference in HIV awareness and perception among different grade levels, and there are misconceptions about HIV among scholars. The results indicated that while Grades 7-9 showed prevalent misconceptions and wide variability in scores (Grade 7 mean = 5.32, SD = 4.22), performance improved steadily through Grade 10 (mean = 12.28) and peaked in Grade 12 (mean = 13.52). The results emphasize prevention of spread of HIV and common misconceptions as a strategy to promote awareness and understanding. This study may contribute to the health policies and programs that will be implemented and inform targeted interventions to reduce stigma and promote effective prevention strategies.

Keywords: Awareness; HIV; Misconception; Students; Perception



Octo-Boost: Enhancing Mastery of Figures of Speech in Grade Six Through an Educational Board Game

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and Jerico M. Majam

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This study investigated the effectiveness of “Octo-Boost” as an instructional intervention to enhance Grade Six pupils’ comprehension of figures of speech at Concepcion Norte Elementary School. Specifically, it aimed to (1) determine the pupils’ initial level of comprehension, (2) assess their perception of the educational board game as a learning tool, (3) evaluate improvements in their comprehension after the intervention, and (4) compare their post-test performance with that of a control group. A quasi-experimental design was employed, involving two intact classes of 14 pupils each. The experimental group received the Octo-Boost intervention for four weeks, while the control group did not receive any instruction on figures of speech. A researcher-made thirty-item test was used as a pre-test and post-test, and a 10-item perception survey was administered to the experimental group. Data were analyzed using descriptive statistics, paired and independent samples t-tests, Cohen’s *d*, and weighted mean. Results showed a significant increase in the experimental group’s post-test scores ($M = 12.10$) compared to their pre-test scores ($M = 7.39$), with a moderate effect size (Cohen’s $d = -0.993$). Pupils also expressed strong positive perceptions of the board game. The findings suggest that Octo-Boost is an engaging and effective tool for improving individual comprehension.

Keywords: mastery, comprehension, figures of speech, board game, effectiveness



Market Accessibility and Its Role in Local Economy: Addressing the Marketplace Gap In Ferrol, Romblon in the College of Arts and Sciences

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This study explored the role of market accessibility in the local economy of Ferrol, Romblon, specifically examining the impact of the absence of a centralized marketplace on economic activities. The research assessed the current status of market accessibility, the role of the Local Government Unit (LGU) in addressing the marketplace gap, the coordination efforts among stakeholders, and the challenges in improving market infrastructure and services. Using a qualitative research approach, the study employed in-depth interviews and focus group discussions with key stakeholders, including LGU officials, vendors, and consumers. The findings revealed that the lack of a functional centralized marketplace significantly hinders local economic activities. Residents face higher transportation costs, while vendors experience reduced profit margins. Although the LGU has implemented temporary solutions, such as the Market Day Ordinance and land acquisition for a public market, these efforts remain insufficient due to limited funding and logistical constraints. Coordination among stakeholders is present but needs stronger partnerships and broader integration to effectively address the marketplace gap. Financial constraints, geographic isolation, and inadequate stakeholder engagement were identified as the primary barriers to sustainable market development. This study underscores the urgent need for collaborative efforts, increased funding, and policy interventions to enhance market accessibility and foster local economic growth in Ferrol, Romblon.

Keywords: market accessibility, local economy, marketplace gap, economic development, stakeholder engagement



Lived Experiences of Persons Deprived of Liberty: A Qualitative Study on Challenges, Resilience, and Opportunities in Odiongan, Romblon

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Romblon State University – San Agustin Campus

This study aimed to explore the lived experiences of Persons Deprived of Liberty (PDLs) at the Odiongan District Jail, with a focus on the challenges they encountered during incarceration, the coping mechanisms they employed, and the perceived effectiveness of rehabilitation programs in facilitating their reintegration into society. A total of thirteen (13) PDLs were purposively selected to participate in this qualitative research. Data were gathered through in-depth interviews and analyzed thematically to provide a deeper understanding of the participants' experiences within the correctional facility. The findings revealed three significant themes: Navigating Life in Confinement, which sheds light on issues such as poor hygiene, overcrowding, social isolation, and delayed legal proceedings—factors that greatly affect the psychological well-being and dignity of PDLs; Adaptation, Engagement, and Emotional Resilience, which explores how inmates cope by engaging in vocational activities, practicing their faith, and forming social connections; and Rehabilitation and Skill Development for Future Reintegration, which emphasizes the role of programs like the Alternative Learning System (ALS) and TESDA-accredited training in enhancing inmates' skills and employability after release. Although post-incarceration employment was not explicitly identified as a primary challenge in the findings, the study recommends the development and implementation of a “Ready for Work Program” as a proactive and forward-looking initiative. This program is intended to help PDLs make use of the skills and knowledge they acquired while in custody by providing a clear pathway for application after release. It seeks to bridge the gap between in-facility learning and real-world opportunities by offering continuous support—from skill enhancement and certification inside the facility, to post-release job placement, mentorship, and career readiness training. While the program does not directly respond to immediate challenges such as limited family contact due to financial constraints, it plays a vital role in long-term reintegration, empowering PDLs to rebuild their lives, reduce recidivism, and reintegrate as productive members of society.

Keywords: lived experiences, persons deprived of liberty, qualitative study, Challenges, resilience, opportunities, Odiongan, Romblon



Kaalaman, Pananaw, at Karanasan: Pagtatasa sa Kalidad ng Sex Education Batay sa Sexual Attitudes at Knowledge ng mga Teenage Mother sa Brgy. Cabolutan, San Agustin, Romblon

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Ang *teenage pregnancy* ay isa sa mga patuloy na hamong panlipunan sa Pilipinas, lalo na sa mga rural na komunidad kung saan limitado ang akses sa maayos na edukasyong sekswal. Sa Barangay Cabolutan, San Agustin, Romblon, mataas pa rin ang kaso ng maagang pagbubuntis sa kabila ng implementasyon ng *sex education* alinsunod sa DepEd Order No. 031, s. 2018. Layunin ng pananaliksik na ito na matasa ang kalidad ng sex education sa barangay batay sa *sexual attitudes* at *knowledge* ng mga *teenage mothers*. Gumamit ang pag-aaral ng *mixed methods approach*—kwalitatibong panayam at kwantitatibong sarbey—na isinagawa sa sampung *teenage mothers*. Ipinakita ng resulta na may mataas na kaalaman ang mga kalahok sa *reproductive health*, *contraception*, at *parenting*, ngunit kulang sa kaalaman sa *Sexually Transmitted Diseases (STDs)*. Positibo rin ang kanilang pananaw sa *birth control* ngunit konserbatibo pagdating sa *casual sex*. Gayunpaman, hindi ito sapat upang mapababa ang insidente ng *teenage pregnancy*. Lumitaw sa kwalitatibong pagsusuri na ang kultura ng pagtanggap sa *teenage pregnancy* at kakulangan ng bukas na diskurso sa pamilya ay nagiging hadlang sa paglalapat ng kaalaman sa aktwal na desisyon. Ipinapahiwatig ng pag-aaral na ang edukasyong sekswal ay dapat hindi lamang nagbibigay ng impormasyon kundi nagpapalalim din ng panlipunang kamalayan. Inirerekomenda ang mas inklusibong *sex education* na isinasama ang kultura, komunidad, at aktibong paggabay ng mga institusyon.

Mga Susing Salita: sex education, teenage pregnancy, reproductive health, STDs, sexual knowledge, sexual attitude



Public Perception: The Influence of Social Media on Public Trust and Confidence to Law Enforcers in the Municipality of San Agustin, Romblon

Francis Jerecho M. Gabay, Ed Bryan C. Fusi, Charles Wayne F. Facalarin, Eljane T. Malacad, Ena P. Delos Santos, and Melchor S. Rufon, Lpt

This study examines the influence of social media on public trust and confidence in law enforcement within the municipality of San Agustin, Romblon. The research aims to understand how social media platforms shape public perceptions of law enforcement agencies, exploring both positive and negative influences. Employing a qualitative methodology, data was collected through surveys and interviews. A guide questions, the primary research instrument, was administered to respondents in San Agustin, Romblon. Qualitative data analysis addressed the central research question: “How does social media influence your perception of law enforcement in your community?” The analysis revealed a significant correlation between the portrayal of law enforcers on social media and community trust levels. These findings highlight social media’s powerful role in shaping public opinion and underscore the need for increased transparency and accountability within the local law enforcement agency. The study concludes with recommendations for law enforcement agencies to strategically leverage social media to build and maintain public trust and confidence. This includes adopting a proactive and transparent social media strategy to foster positive community relations.

Keywords: public perception, social media, public trust and confidence, law enforcement



Ang Gubat sa Gitna ng Siyudad: Eko-Marxistang Pagsusuri ng “Utang na Loob” sa Dokumentaryong "Ang Huling Gubat sa Maynila" ng I-Witness

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Nilalayon ng pag-aaral na ito na ipaliwanag ang konsepto ng "utang na loob" bilang isang panlipunang balangkas sa pag-unawa sa ugnayan ng tao at kalikasan. Sa gitna ng patuloy na urbanisasyon at industriyalisasyon, lumiliit ang pagpapahalaga sa kalikasan sa kabila ng mayamang kulturang Pilipino sa aspeto ng ekolohiya. Gumamit ang pananaliksik ng ekokritisismong lapit at isinagawa ang pagsusuri sa dokumentaryong "Ang Huling Gubat sa Maynila" ng I-Witness. Itinapat sa modelong Rungduin et al. (2015) ang pagsusuri, na binubuo ng tatlong aspekto: pagkilala, panlipunang gampanin, at pagtutumbas. Ipinakita sa dokumentaryo ang masigasig na pangangalaga ng mga environmentalist sa Arroceros Forest Park bilang manipestasyon ng "utang na loob" sa kalikasan. Sa kabila ng banta ng modernisasyon, nagsusumikap silang panatilihin ang ugnayan ng tao sa likas na kapaligiran. Bagaman, may mga sektor na nagpapatuloy sa ganitong pagpapahalaga, lumilitaw rin na unti-unti itong nalilimutan sa kasalukuyang panahon. Iminumungkahi ng pananaliksik ang pagpapalakas ng edukasyong ekolohikal at ang integrasyon ng "utang na loob" bilang batayang prinsipyo sa mga patakarang pangkalikasan upang mapalawig ang konserbasyon ng kalikasan.

Keywords: utang na loob, ekokritisismo, eko-Marxismo, kultura, urbanisasyon



Beyond the Caption: Unveiling the Linguistic and Branding Strategies of Romblon State University Media and Public Affairs’ Facebook Page Through Critical Discourse Analysis

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In today’s digital landscape, institutions are increasingly leveraging social media to strengthen brand identity and promote stakeholder engagement. This study explores the linguistic and branding strategies employed by the Romblon State University Media and Public Affairs Facebook page in constructing its institutional identity. Guided by Fairclough’s (1989) Critical Discourse Analysis and a customized codebook (Aazam et al., 2003), the researchers analyzed 44 original posts from May to August 2024. The findings highlight the strategic use of celebratory tone, personal pronouns (“we,” “you”), and institution-centric keywords such as academic excellence and innovation—techniques which foster a strong sense of community and progressive branding. Hashtags were also used effectively to spotlight key university events and milestones. Visual branding played a crucial role through consistent use of university logos, official colors, high-quality imagery, and layout themes aligned with institutional events. This visual coherence established a professional and recognizable digital identity. Posts projected prestige while maintaining accessibility, fostering solidarity with both internal and external audiences. The study underscores the power of language and visuals in digital identity-building and offers a model for similar institutions aiming to improve their communication strategies. It contributes to the broader field of media and discourse studies by offering localized insights with national relevance. Future research could explore cross-institutional comparisons, multimedia engagement, and sentiment analysis of audience reactions.

Keywords: critical discourse analysis, social media branding, linguistic strategies, institutional identity, engagement metrics



Sa Likod ng Tinta: Persepsyon ng mga Estudyante-Mamamahayag sa mga Salik na Nakakaapekto sa *Campus Press Freedom* sa mga Piling Publikasyon sa Odiongan, Romblon

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Sa kabila ng papel ng *press freedom* sa isang demokratikong lipunan, patuloy ang pag-atake sa midya, kabilang ang *campus press freedom violations* (CPFVs) gaya ng censorship at administratibong interbensyon na nagpapakita ng patuloy na pagsikil sa malayang pamamahayag. Ang pagbaba ng Pilipinas sa *Press Freedom Index* ay patunay rin ng lumalalang hamon para sa mga mamamahayag. Ang pag-aaral na ito ay naglalayong masuri ang persepsyon ng mga estudyante-mamamahayag tungkol sa mga salik na nakakaapekto sa *campus press freedom* sa piling publikasyon sa Odiongan, Romblon: PUSOR, The Harrow, at Eastern Arrow. Naglalayon din nitong malaman kung paano nakakaapekto ang iba't ibang salik gaya ng hamon at impluwensya ng administrasyong pampaaralan at pambansang kalakaran sa kanilang kalayaan sa pamamahayag. Ang pag-aaral na ito ay gumamit ng *Mixed Method Approach (Sequential Exploratory)* kung saan naunang hinahango ang mga datos sa lapit kuwalitatibo na sinusundan ng lapit kuwantitatibo. Sinuri ang focus group discussion at sarbey sa pamamagitan ng *thematic analysis* at *descriptive analysis* para sa malalimang pagsusuri ng mga pananaw, *pattern* at temang lumilitaw. Pinatunayan ng pag-aaral na iba-iba ang persepsyon ng mga estudyante-mamamahayag sa *press freedom* na kanilang natatamasa. Nabanggit din ang mga hamong kanilang kinakaharap, gaya ng pangangailangang panatilihin ang imahe ng paaralan at kakulangan sa pondo at suporta ng administrasyon upang matiyak ang kalayaan ng pamamahayag sa kampus. Ang malayang kampus pahayagan ay isang pangunahing karapatan ng estudyanteng mahalaga para sa demokrasya. Ito ay nagdudulot sa mga estudyante ng mga impormasyong makabuluhan, at maging bahagi ng talakayan at demokratikong proseso.

Susing-Salita: persepsyon, estudyante-mamamahayag, campus press freedom, demokratiko, hamon



Utilizing Quizlet as A Practice Tool to Enhance Algebraic Word Problem Comprehension of Grade 7 Students

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This research study explores the effectiveness of using Quizlet as a practice tool to enhance the comprehension of algebraic word problems among Grade 7 students at Laboratory Science High School (LSHS). It addresses the persistent challenges of low mathematical performance and difficulties in problem-solving skills, particularly in algebraic word problems. The study employed a quasi-experimental design, comparing the pre-test and post-test performances of control and experimental groups to determine the impact of the Quizlet intervention on students' comprehension levels. The study population consisted of Grade 7 students at LSHS. Two sections, consisting of 32 students, were selected as respondents and assigned to either the experimental or control group using purposive sampling. Data from pre-tests and post-tests were analyzed using mean and standard deviation, while a paired t-test determined the significant differences between the two groups. Results revealed that the experimental group showed significant improvement after the integration of Quizlet in instruction, whereas the control group showed no progress. Moreover, statistical analysis (ANCOVA) confirmed the intervention's effectiveness in enhancing learning outcomes in the experimental group. These findings suggest that integrating Quizlet can improve student mastery of algebraic concepts. Therefore, it is recommended that educators incorporate technology-based interventions in mathematics instruction to enhance students' academic performance. Future research should explore the long-term effects of such interventions and identify best practices for implementing digital tools in educational settings.

Keywords: quizlet intervention, algebraic word problems, comprehension, educational technology



Wikang Nagbabago: Isang Lingguwistikong Pag-aaral ng mga Terminong Mula sa mga *Captions* ng *Alterverse (Male to Male)* sa X (dating kilala bilang Twitter)

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Sa mga social media sites, ang mga *slangs* o *Alter coded words* ang nagiging paraan ng *Alterverse* (M2M) upang ilathala ang kanilang identidad, pagpapalagayang-loob o *intimacy*, at ang iba't ibang *taboo* topiko. Ngunit sa kabila ng pagyabong ng interes sa mga kahulugan ng mga salita, kakaunti ang mga pag-aaral patungkol sa kahulugan at semantikong pagkakaiba ng mga ito. Sa pag-aaral na ito, nilalayan na makabuo ng listahan ng mga terminong mula sa caption sa *Alterverse* (M2M) sa X at masuri ang paggamit at pagbabago ng kahulugan gamit ang *Word Sense Disambiguation* (WSD) kalakip ang semantikong pagkakaiba ng mga salita. Ito ay gagamit ng *Qualitative approach*, partikular ang *Thematic Analysis Theory*, upang makita, masuri at mabigyan ng kahulugan ang mga datos. Natuklasan ng pag-aaral na gumagamit ang *Alterverse* ng coded/slangs na salita upang maitago ang sa likod ng totoong kahulugan ng mga salita ang mga sensitibong laman ng konteksto rito. Dagdag pa rito, may *semantic nuances* at mga *word-formations* na natuklasan, kagaya ng *Appropriation*, *Mutation*, at *Indexicality*. Panghuli, ipinapakita rin na ang wika ay hindi lubusang nagbabago, kundi nagkakaroon lamang ng maliliit na pagbabago sa kahulugan na nakabatay sa partikular na konteksto ng *Alterverse*. Nagbibigay ang pag-aaral ng mas malinaw na gabay sa mga hindi pa pamilyar sa *Alter-coded words* upang maunawaan ang nakatagong kahulugan ng salita. Bukod pa rito, nagbubukas ito ng mga bagong oportunidad para sa pananaliksik ukol sa ugnayan ng wika, identidad, at pagtanggap ng lipunan sa loob upang mas maintindihan ang *Alterverse*.

Keywords: word sense disambiguation, alterverse, social media, X, M2M, semantic nuances



Pagtugon sa Matinding init: Persepsyon ng mga Mag-aaral sa Paglipat sa Distance Learning Dulot ng Mataas na Heat Index sa Odiongan National High School

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Ang patuloy na pagtaas ng heat index sa Pilipinas, na dulot ng mga epekto ng climate change at El Niño, ay may malalim na implikasyon sa kalusugan at edukasyon ng mga mag-aaral. Sa Odiongan, Romblon, ang naitalang heat index na umaabot sa 41°C ay nagresulta sa pansamantalang pagsuspende ng klase at paglipat sa distance learning. Ang layunin ng pag-aaral na ito ay suriin ang persepsyon ng mga mag-aaral ng Odiongan National High School hinggil sa epekto ng distance learning sa kanilang akademikong pagganap, kalusugan, at kaginhawaan sa panahon ng matinding init. Upang makuha ang pananaw ng mga mag-aaral, ginamit ang mixed methods approach na kinabibilangan ng survey na may Likert scale at focused group discussion. Ang saradong tanong sa survey ay sinuri gamit ang t-test upang matukoy ang pagkakaiba ng mean scores, samantalang ang mga open-ended ay isinailalim sa tematikong pagsusuri. Ipinakita ng mga resulta na ang mga mag-aaral ay nakakaranas ng mababang antas ng kasiyahan, konsentrasyon, at kalusugan sa distance learning kumpara sa face-to-face setup. Bukod pa dito ay ang kakulangan sa interaksyon sa guro, ang hirap sa pagsunod sa iskedyul ng klase, at ang mga epekto ng init sa pisikal at mental na kalagayan ng mga mag-aaral. Ayon sa resulta, marami sa mga mag-aaral ang nagpahayag ng hindi pag-apruba sa distance learning, partikular sa ganitong konteksto ng matinding init. Bilang tugon, iminungkahi ng pananaliksik ang pagpapaunlad ng mga estratehiya na makakatulong sa pagpapanatili ng kalidad ng edukasyon sa kabila ng mga hamong dulot ng mataas na heat index.

Keywords: heat index, perception, Odiongan National High School(ONHS), likert scale, thematic analysis



Depiksyon ng Kasaysayan: Isang Kritikal na Pagsusuri sa Maid in Malacañang ni Daryl Yap

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Ang *Maid in Malacañang*, isang pelikula ni Daryl Yap, ay naglalarawan ng umano’y huling 72 oras ng pamilyang Marcos sa Malacañang bago ang EDSA People Power Revolution noong 1986. Sa kabila ng popularidad nito, umani ito ng iba't ibang reaksyon mula sa publiko dahil sa pagtalakay nito sa isang sensitibong yugto ng kasaysayan ng Pilipinas. Bunsod nito, isinagawa ang pananaliksik na ito upang masuri kung paano naiintindihan at tinatanggap ng kabataan, partikular ng mga mag-aaral, ang mga temang inilahad sa pelikula at kung paano ito nakaaapekto sa kanilang pananaw sa kasaysayan ng Martial Law. Gumamit ang pag-aaral ng kritikal na pagsusuri sa pelikula at panayam sa mga eksperto sa kasaysayan upang matukoy ang nilalaman, layunin, at implikasyon ng naturang media. Ipinakita ng mga resulta na may kapangyarihan ang pelikula na hubugin ang persepsyon ng kabataan hinggil sa mga makasaysayang pangyayari, lalo na kung hindi sapat ang kanilang kaalaman sa nasabing yugto ng kasaysayan. Iminumungkahi ng pag-aaral ang pagpapalakas ng edukasyong pangkasaysayan at media literacy sa loob ng mga silid-aralan upang matulungan ang mga mag-aaral na magkaroon ng mas malalim, kritikal, at balanseng pag-unawa sa mga kontemporaneong representasyon ng kasaysayan. Sa huli, binibigyang-diin ng pananaliksik ang kahalagahan ng mapanuring pag-iisip sa pagharap sa mga pelikula at midyang may temang historikal.

Mga susing salita: Maid in Malacañang, historical representation, youth perception, Martial Law, media literacy



Consumers Satisfaction towards Customer Support Services of Romblon Electric Cooperative (ROMELCO) in Sibuyan Island

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An effective customer support service plays an important role in consumer satisfaction for electric cooperatives by addressing inquiries and resolving issues promptly, thereby fostering long-term customer relationships. However, in Sibuyan Island, ongoing issues with electricity reliability and related services have raised growing concerns among residents about the performance of the Romblon Electric Cooperative (ROMELCO). This study assessed the quality of ROMELCO's customer support services across five service quality dimensions: reliability, tangibles, assurance, empathy, and responsiveness, based on consumers' expected and perceived levels of satisfaction. This descriptive-quantitative study employed stratified random sampling among 11,955 residential consumers from Cajidiocan, Magdiwang, and San Fernando in Sibuyan Island. Using the Raosoft formula with a 5% margin of error, a sample size of 373 respondents was determined. Data were collected through a modified survey questionnaire adapted from Achchuthan et al. (2014) and analyzed using frequency, percentage, weighted mean, Pearson correlation, Mann-Whitney U test, multiple regression, and rating scales. The findings revealed that most respondents were young, female, low-income residents of San Fernando who had been long-term consumers of ROMELCO. Consumers generally had higher expectations of ROMELCO's services than what they actually experienced across all service quality dimensions. A significant difference was found between expected and perceived satisfaction levels, indicating a consistent service gap that reflects overall moderate dissatisfaction. Lastly, the only significant determinant of consumer satisfaction was estimated monthly income. The positive coefficient (0.058) indicates that as consumers' monthly income increases, their satisfaction with ROMELCO's customer support services also increases.

Keywords: consumer satisfaction, customer support services, electric cooperatives, service quality



Exploring Geographic Information System: A Tool for Crime Analysis, Prevention Strategies, and Security Enhancement in the Municipality of San Agustin, Romblon

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This study investigates the implementation of Geographic Information System (GIS) as a tool for crime mapping, pattern analysis, and prevention strategies in the Municipality of San Agustin, Romblon, Philippines. Using a descriptive research design and literature review methodology, the study analyzed crime data from 2019 to mid-2024, encompassing 182 documented criminal incidents. The research developed a comprehensive spatial dataset integrating multiple data sources to create detailed crime maps. Analysis revealed that vehicular accidents, predominantly attributed to driving under the influence of alcohol, constituted the most frequent offense across the study period. Significant temporal variations were observed, with peak crime rates in 2021 (51 cases) and 2023 (53 cases). The study identified distinct patterns in environmental crimes, particularly illegal logging (notably in 2021), and various special law violations including gambling and drug-related offenses. The implementation of GIS mapping proved effective in visualizing spatial and temporal crime patterns, enabling law enforcement agencies to identify high-risk areas and optimize resource allocation. The research culminates in comprehensive recommendations, including the establishment of a modernized GIS-integrated crime reporting system, enhanced traffic safety programs, and strengthened community engagement initiatives. This study contributes to the growing body of evidence supporting technology-driven approaches in law enforcement and provides a framework for evidence-based decision-making in local crime prevention strategies.

Keywords: Geographic Information System (GIS), crime mapping, spatial analysis, law enforcement, crime prevention.



Development and Validation of ‘Enimage’ as an Instructional Manipulative in Teaching Content Words

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Content word knowledge is fundamental in building sentence meaning, affecting comprehension, vocabulary development, and critical thinking skills. In this study, the researchers conducted a baseline and needs assessment involving thirty (30) Grade 8 students and three (3) English teachers in Tablas Island, Romblon, which revealed difficulties in using verbs, adjectives, and adverbs, worsened by limited instructional time, low motivation, and poor study habits (Sevilla, 2024; Manzo, 2024; Obsid, 2024). Guided by Type I developmental research and the Talisayon & Vistro-Yu (1997) curriculum-development model, the researchers designed, piloted, and refined Enimage—an interactive instructional manipulative aimed at reinforcing content word mastery. A curriculum alignment and formative evaluation was conducted with six (6) curriculum experts and twenty-five (25) English teachers using DepEd’s Guidelines and Processes for Learning Resource Management and Development System (LRMDS), questionnaires, structured interviews, rubrics, and Flesch–Kincaid readability test. As a result, Enimage satisfied the predetermined criteria for visual design, educational value, engagement, and social interaction. A readability analysis also confirmed its appropriateness for the target grade level. Additionally, evaluators noted its promotion of critical thinking, vocabulary retention, and broad learner engagement through scaffolded challenges incorporated into gameplay. In the summative evaluation, results showed significant improvement in Grade 8 students’ content word knowledge from pre-test ($M = 29.40$) to post-test ($M = 37.57$), with a t-statistic of ± 5.19 greater than the critical value of 2.045. These findings support Enimage as an effective instructional material. Evaluators recommended its integration into classroom instruction, securing copyright protection, and exploring digital adaptations for blended learning environments

Keywords: Enimage, instructional manipulative, content words, comprehension, vocabulary development



Exploring the Phenomenon of Social Media Posts among Education Students: Implications on Language Choice Use

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Teacher branding refers to the intentional and strategic efforts of teachers to establish and promote their professional image, reputation, and unique qualities. It involves creating a distinct identity, building a positive online presence, and effectively communicating one's teaching philosophy, expertise, and accomplishments. This study employs a mixed-method approach to investigate the phenomenon of social media posts among education students at Romblon State University- San Fernando Campus and its implications for language choice use. The quantitative data were collected from 61 respondents through a survey. The findings revealed a predominance of female social media users/1ff, with Facebook being the most preferred platform. The study showed respondents' frequency of posting was driven by expressing themselves through liking comments and sharing photos, highlighting self-expression and freedom of expression as key motivations. Tagalog emerged as the primary language choice of BSED English Majors, with a noteworthy emphasis on linguistic accuracy through the use and observation of correct spelling when posting. On the other hand, respondents frequently shared images containing inspirational content, followed by inappropriate content. It may have inferred that there were few students who shared posts that contained double-meaning words or green-minded captions. Students are more likely to come across motivational and educational content, while content with double-meaning captions also showed a relatively frequent presence. While politics has relatively lower importance in terms of engagement. The respondents experienced a range of emotions when posting on social media, with happiness being the most common emotion associated with posting. The qualitative interviews resulted in 11 key elements of formulated themes from the participants' emotional reflections and experiences: personal boundaries, choosing appropriate words, ethical consideration, professionalism and appropriateness, critical thinking, building resilience and overcoming challenges, knowledge enrichment, conducting seminars for awareness, think before you click, protecting professional reputation, employability and career growth.

Keywords: phenomenon, online posting, social media platforms, education students, linguistic accuracy



Assessment of Human Rights-Based Policing on Capability Building-Efforts, Knowledge and Practice of PNP San Agustin, Romblon

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This study was conducted to assess the capability-building efforts, knowledge, and practice of human rights-based policing (HRBP) of PNP San Agustin personnel in the Municipality of San Agustin, Romblon. Specifically, this study answers the following questions: What are the capability-building efforts of PNP San Agustin Personnel in human rights-based policing? What is the knowledge of PNP San Agustin personnel towards human rights-based policing standards of the PNP? What are the practices of PNP San Agustin personnel towards human rights-based policing? What are the experiences of PNP San Agustin Personnel in implementing human rights-based policing? What are the experiences of those who were formerly arrested or detained by PNP San Agustin Personnel? A descriptive qualitative research design—specifically phenomenological—was employed. Data were collected through semi-structured interviews with 11 police officers assigned to San Agustin Municipal Police Station and 5 individuals formerly arrested and detained there. Participants were selected through purposive sampling, based on their direct involvement with HRBP activities or experiences. Thematic analysis was used to interpret and organize the interview data into core themes. Findings indicate that human rights education is systematically integrated and mandatory across all seminars, trainings, and upgrade courses for PNP San Agustin personnel. Officers demonstrated comprehensive knowledge of HRBP standards and exhibited a strong commitment to upholding human rights principles. Their implementation experiences varied in context but consistently reflected adherence to HRBP guidelines. Formerly detained individuals reported being treated in accordance with PNP’s human rights protocols, affirming respectful and lawful treatment during arrest and detention.

Keywords: assessment, human rights based policing, capability building efforts, knowledge, practice



Development and Validation of “CommuniQuest” as an Instructional Manipulative in Teaching Communicative Styles

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This study focused on the development and evaluation of CommuniQuest, an instructional manipulative designed to address challenges in teaching communicative styles to Grade 9 English students. It aimed to examine the effects of such manipulatives in enhancing student learning and engagement. Specifically, the study identified the least mastered competencies in the first quarter of Grade 9 English and evaluated both teacher and student perspectives on CommuniQuest in terms of visual design, educational value, engagement, and social interaction. It also explored differences in evaluators' levels of acceptability and examined the readability of the instructional material. A Type 1 developmental research approach was used, following the instructional design model of Talisayon and Vista-Yu (1997). This model supported a systematic process of needs assessment, curriculum alignment, and formative evaluation, using tools from DepEd’s Learning Resource Management and Development System (LRMDS). Findings showed that CommuniQuest was rated as “Very Satisfactory” by both teachers and students. However, a significant difference was found in their perceptions, particularly in curriculum alignment and visual design ($p=0.024$), suggesting varying priorities between the two groups. Despite this, the hypothesis of acceptability remained supported. Overall, the study highlights the potential of instructional manipulatives in improving communicative competence and recommends enhancements to increase their effectiveness in the classroom.

Keywords: instructional manipulatives, communicative styles, Grade 9 English, developmental research, CommuniQuest



Fract-Mathster: A Game-Based Approach for Equivalent Fraction Learning

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This study investigated the effectiveness of *Fract-Mathster*, a game-based learning tool designed to enhance Grade Four pupils' understanding and engagement in learning equivalent fractions. Motivated by the consistently low performance of Filipino learners in mathematics—particularly in fractions—this research aimed to provide an alternative, engaging instructional approach. A quasi-experimental design was employed at Concepcion Norte Elementary School, involving 24 pupils equally divided into experimental and control groups. The experimental group used the *Fract-Mathster* board and card game, while the control group received traditional instruction. Data were gathered through pre-tests, post-tests, and a Likert scale measuring cognitive, behavioral, and emotional engagement. The results revealed that the experimental group demonstrated high engagement, particularly in the emotional domain, and achieved greater improvement in post-test scores compared to the control group. Statistical analysis using a paired samples t-test showed a significant difference between the pre- and post-test scores of the experimental group ($p < 0.001$), with a large effect size (Cohen's $d = -1.63$), indicating meaningful learning gains. However, there was a weak positive relationship between engagement and post-test performance ($p = 0.494$), with a correlation coefficient (r) of 0.219. These findings support the conclusion that game-based approaches like *Fract-Mathster* not only make learning more enjoyable but also significantly improve pupils' mastery of equivalent fractions.

Keywords: game-based approach, equivalent fractions, Fract-Mathster, engagement



Development and Validation of ‘Sylvan Clues’ as an Instructional Manipulative in Teaching Context Clues

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Reading comprehension and vocabulary are critical foundations for academic success, directly influencing students' ability to analyze information, engage with complex texts, and perform across subject areas. In this study, the researchers used quantitative research design, descriptive-developmental method, and the instructional design model of Talisayon and Vistro-Yu (1997). The researchers conducted a baseline and needs assessment involving thirty (30) Grade 8 students and three (3) English teachers in Tablas Island. The results revealed a significant challenge faced by Grade 8 students in vocabulary and reading comprehension where majority of students performed below 50%. This led to the development of Sylvan Clues; a gamified approach to improve students' reading comprehension and vocabulary through context clues. Instruments from the Learning Resource Management and Development System (LRMDS) of DepEd and research-made surveys were used for the needs assessment, curriculum alignment, and formative evaluation. Mean, standard deviation, percentage, Spearman Rho, and Flesh-Kincaid test Readability tests were used to analyze and interpret the gathered data. The summative evaluation, involving (30) Grade 8 students, resulted in significant improvement from the pre-test ($M=23.57$) to post-test (33.37) with t-statistic of ± 5.20 and a critical value of 2.045. Sylvan Clues serves as an effective instructional manipulative for teaching context clues, as evidenced by favorable evaluations from both teachers and students. Furthermore, evaluators recommended expanding the sample size and exploring digital adaptations to provide broader applicability and greater accessibility for learners. The successful implementation of Sylvan Clues highlights the potential of interactive and game-based learning strategies in strengthening English language instructions.

Keywords: Sylvan Clues, instructional manipulative, context clues, vocabulary, reading comprehension



Assessment of Knowledge of Food Security and Insecurity Among Grade 10 and 11 Scholars of Philippine Science High School - MIMAROPA Region Campus

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Food security is a crucial global issue that directly impacts well-being, while food insecurity arises when access to sufficient, safe, and nutritious food is limited or uncertain. Addressing food insecurity requires a comprehensive approach, including better resource distribution, education, and targeted interventions for vulnerable populations. This study aimed to assess the knowledge and personal experiences of food insecurity among Grade 10-11 students in the PSHS MRC Scholars program. Through an online survey, the research evaluated students' understanding of food security and insecurity, as well as the factors contributing to these issues. Results showed that most students had a basic understanding of food insecurity, recognizing key factors such as socioeconomic status, access to resources, and environmental conditions yet, there is still a clear need for deeper education on the complexities of the issue. Additionally, the study explored the students' personal experiences with food insecurity. Approximately 33.6% of students reported experiencing food insecurity several times or frequently, highlighting that this is not just an abstract issue but a lived reality for many. While most students experienced food insecurity only occasionally, the results underline the persistent challenges faced by a significant portion of the youth population. These findings emphasize the importance of enhanced support systems, awareness campaigns, and interventions aimed at alleviating food insecurity among youth, particularly within vulnerable communities. Overall, this study underscores the pivotal role of education in understanding and addressing food insecurity among young people.

Keywords: food insecurity, student experiences, youth population, PSHS MRC scholars, educational awareness



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