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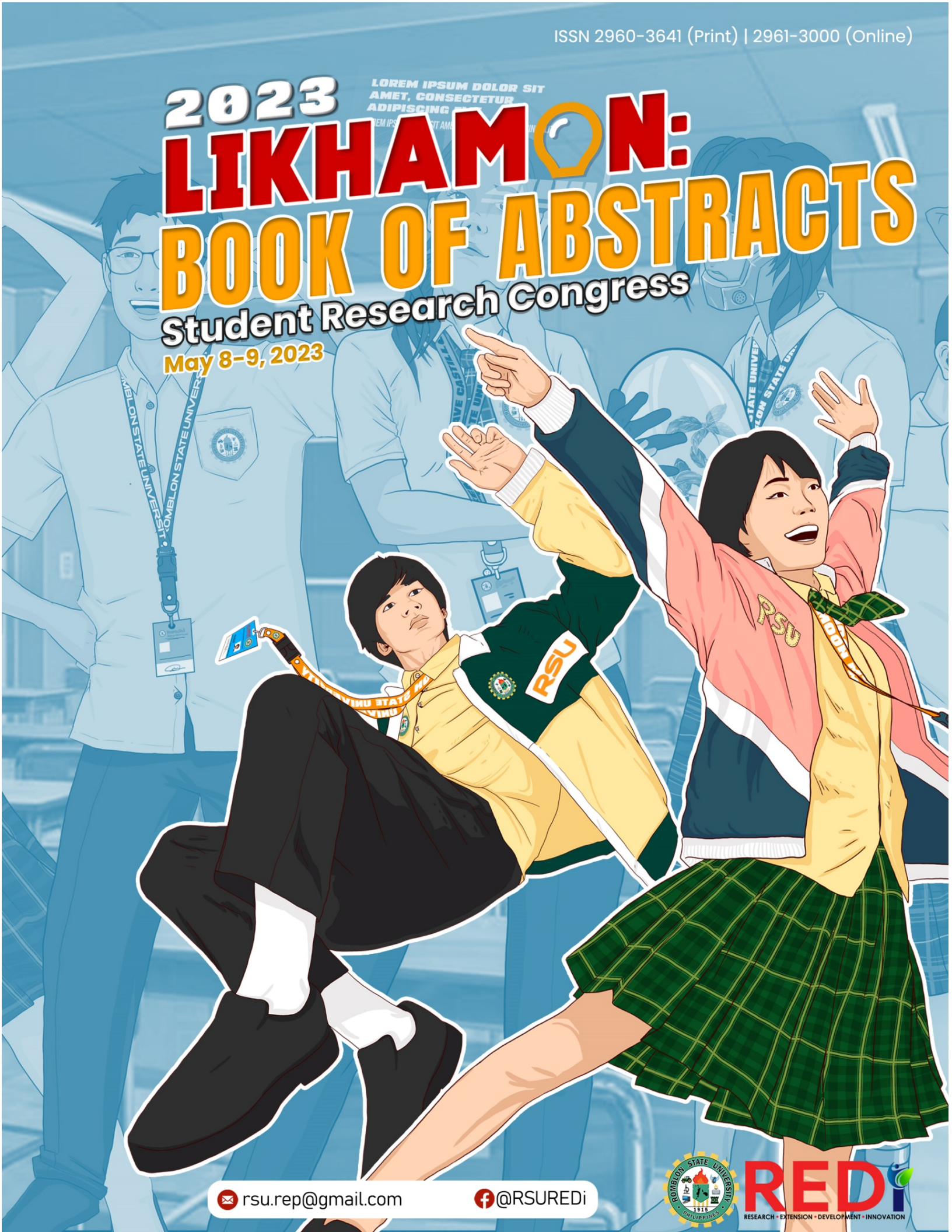
2023 LIKHAMON: BOOK OF ABSTRACTS

Student Research Congress

May 8-9, 2023



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Message of the President

First and foremost, I want to extend my warmest congratulations to Dr. Eddie G. Fetalvero, our Vice-President for Research, Extension, Development, and Innovation, to Engr. Jerome G. Gacu, the newly designated Research, Development and Innovation Director and to all the unit heads of the RDI Office.

I would also like to congratulate the young researchers from different campuses, from the Laboratory Science High School, of making a decision, not letting this opportunity pass by. Young researchers should look for opportunities, never let opportunities pass by, grab that opportunity,and use it because if you will not, somebody else will take it, and your opportunity will be gone forever. By taking this opportunity, you were able to gain insights – insights which you can make use to grow not only as a researcher but as a person. By taking this opportunity, you will be able to develop your knowledge and confidence which cannot be bought from any convenience stores.

Developing confidence is scary – it is built, acquired, and earned through hard work. Nevertheless, don't fear. Overcome your imitations because the only thing that you should embrace is that opportunity is limitless. Erase the words "limitations" and "dream". If you dream, then you can – work hard for it, believe that you can and make it a reality. It will not be easy, it will be a painstaking journey but remember, success is only available to those who are willing to sacrifice. There is no easy way, you will always have to invest and trade your comfort zones for challenging ventures, challenging roles. Do not rely on easy roads; choose to walk on the road that has never been discovered or make a new road to your destination. Choose the challenging road because the more challenges you overcome, the better version of yourself will come out. And with God guiding us, with prayers everyday, we will always be assured that we are on the right path, we will never be blinded by false truth. Rember, it is not you alone nor I alone, it is always we together.

Once again, congratulations to the REDI Unit and God bless us all. RSU is making a name for Research, Development, and Extension not only as a follower but as a leading institution in the MIMAROPA Region.

MERIAN P. CATAJAY-MANI, ED. D., CESE
University President

Message of the Vice President for Research, Extension, Development, and Innovation

Greetings!

First and foremost, I would like to congratulate the switches, the innovative minds, behind the Likhamon 2023, the Picthing Competition and Student Research Congress.

This is a sequel to last month's Likhamon 2023: The Hackaton, where we kept young inventors, students and teachers, alike, presented to them the pressing problems our communities face, and challenged them to provide never been thought solutions to address them, in the span of 24 hours away from home, somewhere in the scenic Binucot Beach.

And we were surprised with the results!

Romblon State University has a hidden wealth of creative and inventive minds, that can potentially disrupt the way we do things normally and create a sustainable future for our generation and the next.

When it comes to disruption and futures thinking, Elon Musk is one of the icons that usually pops into my head.

Elon Musk is a highly successful entrepreneur, inventor, and innovator who has founded and co-founded several successful companies, including Tesla, SpaceX, Neuralink, and The Boring Company. His story is filled with determination, persistence, and a willingness to take risks, which can be highly inspiring to aspiring entrepreneurs.

Here are a few highlights from his story:

- From an early age, Musk had a passion for science and technology. He taught himself computer programming at the age of 12 and started his first software company, Zip2, at the age of 24.

- After selling Zip2 for over $300 million (P16.6B), Musk founded X.com, which later became PayPal. PayPal revolutionized how people conduct online transactions and was eventually sold to eBay for $1.5 billion (P83B).

- Musk's interest in space travel led him to found SpaceX, a private space exploration company that aims to make space travel more accessible and affordable. Despite setbacks and failures, SpaceX has successfully launched several rockets and delivered supplies to the International Space Station.

- Musk's passion for electric cars led him to found Tesla, which has become a leading manufacturer of electric vehicles. Tesla's success has helped to accelerate the transition to sustainable transportation and reduce reliance on fossil fuels.

- Musk has also founded Neuralink and Open AI, a company that aims to develop implantable brain-machine interfaces, and The Boring Company, which is focused on developing faster and more efficient ways to tunnel underground.

- In April 2022, Elon acquired Twitter for 44B (2 trillion pesos).

Overall, Musk's story shows that with hard work, perseverance, and a willingness to take risks, it is possible to achieve great things and significantly impact the world.

But you know what, what struck me about Elon's story was his disappointment with the school system. He argued that kids are trained in an assembly line much like a factory which limits their ability to solve problems critically and creatively.

At SpaceX station, Elon founded a school for his children and employee's children (about 50) he called Ad Astra (to the stars), which is based on first principles thinking. Kids from 7 to 14 years old are taught to work together as a team- no grade levels. The subjects ranged from Artificial Intelligence (AI), applied science, coding and design of many things, to mainly the creation of robots.

First Principles thinking focuses on breaking down complex concepts into their fundamental components or basic principles and then building up from there. For example, in Physics, when teaching the laws of motion, a first principles approach would start with the most fundamental concepts, such as mass, force, and acceleration, and build up to more complex concepts, such as friction and air resistance.

Another example is that Elon wanted to develop a low-cost rocket. He asked the questions, "what are the fundamental physics and economics concepts here?". Let us start from there! And now we got the Starship which is $548 cheaper than NASA's.

School's students being exposed to real-world problems and solutions. Some of the kids' problems involved practical issues, such as the rollout of Tesla's Supercharger Network in another country. Since such problems have many solutions, students could then learn to reason.

Like this problem, if you had to choose one future, which would it be: a: travelling to anywhere on earth within an hour; b. Going sightseeing on the moon; c. Starting a city on Mars. But the idea is, which one will come first and will change life on Earth the most?

We as an SUC in a third-world country and an island province, cannot afford this kind of educational environment and opportunities. But given our limited capacities and resources, we want to give you an experience of a lifetime and open your mind to the idea of possibilities if you set your mind, soul, and heart into it.

This is the reason why, in the past few years, the Research, Development and Innovation Office of the University has been steering its direction to harnessing the inventive and creative minds of our faculty and students with the view of making the University an innovation and incubator hub, where your ideas are taken care of until they are hatched.

LOREM IPSUM DOLOR SIT AMET, CONSECTETUR ADIPISCING ELIT

LOREM IPSUM DOLOR SIT AMET, CONSECTETUR ADIPISCING ELIT

Gone are the times when our research papers gather dust in the library and are not utilized by our end-users. It is time for us to step up as partners in our communities for sustainable development.

I am overjoyed scanning through the programs and the projects to be pitched today and excited to meet our partner entrepreneurs.

Just like Elon, to the extent that we want to predict the future, we must create the future.

Good morning and enjoy this celebration of the power of the human mind.

EDDIE G. FETALVERO. PH.D
Vice President for Research, Extension, Development, and Innovation


EANS
ENVIRONMENT, AGRICULTURE, AND NATURAL SCIENCES

Chemistry and Biopharmaceutical Potential of Lichens

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Romblon State University – College of Arts and Sciences

Lichens are complex organisms that can survive harsh conditions allowing for the development of a range of compound classes. A novel source of bioactive compounds in nature is necessary, and a renewed and rising interest in lichens as a source of novel, bioactive compounds have recently emerged. This study presents an overview of ongoing research and development trends in lichens' antibacterial, antifungal, anticancer, and antiviral activities and their bioactive compounds. Seventeen (17) illustrations and 202 references from electronic databases, such as PubMed, PubMed Central, Science Direct, and Directory of Open Access Journals, are included in the current review. The morphology, symbiosis, and bioactivities of lichens, including their antibacterial, antifungal, antiviral, and anticancer properties, were compiled and reviewed. Foliose and Fruticose were the most tested lichen types and were found to have antibacterial, antifungal, anticancer, and antiviral activities. Meanwhile, Atranorin was mentioned as a compound that possesses all bioactivities. Lichens have a lot of untapped potential that must be completely utilized. Future research, the biopharmaceutical industry, human health, and society would all benefit from these findings.

Keywords: lichens, bioactive compounds, biopharmaceutical, Foliose, Fruticose, Atranorin, review

Vermicast Production: Its Nutrient Content Analysis using Different Substrates

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Romblon State University – Cajidiocan Campus

Vermicomposting is a way of composting that utilizes worms to convert organic materials into humus-like material known as vermicompost. It is relatively faster to produce compared to the traditional way of composting and produces a superior quality compost product as well. It is superior because it helps improve physical, chemical and biological properties of the soil and contributes to its organic enrichment. This study was conducted to determine and develop the best substrate combination for vermicomposting that can produce a high-quality vermicompost using locally and commonly found organic wastes for mass production. The study used the quantitative experimental research method to determine the best possible substrate combination for vermicomposting. There were four treatments in the study, with four replicates in each treatment. All samples were used to collect data; all their vermin and vermicast were collected and recorded. For the NPK analysis, the study used a cluster sampling method in which only one representative for each treatment was used. All data gathered were tallied, tabulated, analyzed, and interpreted accordingly using appropriate statistical methodologies. The study showed no significant difference in terms of vermin population, weight of vermicast, and its NPK content between treatments.

Keywords: organic wastes, NPK analysis, vermicast, vermin, substrates

Effectiveness of Kuyapo (Sargassum vulgare) as Liquid Fertilizer in Growing Pole Sitaw (Vigna unguiculata)

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The study aimed to test the effectiveness of Kuyapo (*Sargassum vulgare*) liquid fertilizer on the growth of Pole Sitaw (*Vigna unguiculata*) and to answer specific questions related to its effectiveness in terms of plant height, number of branches, leaves, flowers, pods, and pod length. The study used two treatments of liquid *S. vulgare* fertilizer and observed the growth response of Pole Sitaw in terms of the number of flowers, pods, and the average length of pods. The weighted mean was used to analyze the data gathered, while One-Way Analysis of Variance (ANOVA) was used to determine the significant difference of the results from experiment groups. The study used two treatments with varying ratios, Treatment 1 (200mL:4000mL) and Treatment 2 (400mL:4000mL0) to wit. Both treatments were equally effective in promoting the growth of Pole Sitaw in terms of the number of branches and pods produced, however, in terms of flower production, Treatment 2 appeared to be more effective. The study was conducted without any respondents, but observation sheets were used to measure the rate experimental fertilizer's effectivity rate. Long-term effects and sustainability of the fertilizer was not included in this study; thus, it was recommended for further research.

Keywords: Sargassum vulgare, Pole Sitaw, liquid fertilizer, plant growth, agriculture

Hatching Capability and Survival of Larvae of Two Locally Available Macrobrachium Species in San Agustin, Romblon under Different Salinity Levels

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Romblon State University – San Agustin Campus

Freshwater prawns are high-valued crustaceans that grow in inland bodies of water like rivers and streams. Stock assessment and breeding trials of locally available *Macrobrachium* species were the identified strategies to increase the freshwater prawn production in the country. Meanwhile, environmental conditions such as salinity impact on freshwater prawns at various life stages were identified. The optimum salinity level for hatching varies with species. Thus, this study evaluated the hatching capability, seed productions and survival rate of larvae of two locally available species of freshwater prawn in San Agustin Romblon, the *Macrobrachium lar* and *Macrobrachium latimanus,* under three salinity levels, 0ppt, 6ppt and 12ppt. Berried freshwater prawns with greyish eggs were collected in different streams of Barangay San Agustin, Romblon. The prawns were randomly allotted per experimental treatment and were fed with pelletized shrimp feed. Larvae were fed with *Artemia* nauplii and egg custard during the experiment. Results showed *M. latimanus* obtained a significantly higher hatching rate than *M. lar* ($P<0.05$). In contrast, *M. lar* obtained significantly higher seed production than *M. latimanus* ($P<0.05$). The different salinity levels showed no significant difference in terms of hatching rate and seed production on *M. lar* but showed significant difference on *M. latimanus*. Meanwhile, the survival rate showed decreasing pattern over time. *M. lar* reared at 6 ppt obtained the longest survival than *M. latimanus*. Thus, the study's findings suggest that *M. lar* may be a promising candidate for freshwater prawn culture and must be subjected to further investigation on its breeding and culture trials.

Keywords: hatching rate, seed production, survival rate, M. lar, M. latimanus

Assessment Of Freshwater Prawn in Selected Barangays of San Agustin, Romblon, Philippines

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Romblon State University – San Agustin Campus

Freshwater prawn is an essential aquatic animal found in the streams of San Agustin. It serves as the main ingredient for municipality's native delicacy called "sarsa". In the locality, freshwater prawn culture was practiced using wild stocks. Stock assessment for potential cultivable species was an identified strategy to increase the production of this species in the country. Thus, this study assessed the inland waters of San Agustin, Romblon, for potential stocks of cultivable freshwater prawn species. The assessment was conducted using shrimp pots in the middle and upper streams of the five barangays of San Agustin last February-April, 2023. A total of two species were found in all streams of San Agustin. *Macrobrachium lar* and *Macrobrachium latimanus*. These species range from weight of 5.18g to 31.8g and a total length of 64.50mm to 124.2mm, which was larger than the freshwater prawn specimen obtained in other places in the country. Among the five barangays, barangay Lusong had the highest CPUE due to its larger stream, while barangay Sugod had the highest percentage of traps with caught freshwater prawn. M. latimanus was the most dominant species. Freshwater prawn fishing significantly contributes to the economic status of locals by engaging all ages and sex in providing additional sources of livelihood. *Macrobrachium latimanus* and *Macrobrachium lar*, cultured in other countries, were recommended for investigatory studies on their reproductive biology and subjected to breeding and culture trials. Moreover, conservation and management measures for freshwater prawns should be imposed.

Keywords: freshwater prawn, stock assessment, Macrobrachium lar, Macrobrachium latimanus

Microplastic Assessment of Table Salt Used in the Province of Romblon

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Microplastics have been detected in table salt in various studies. These microplastics are believed to originate from various sources, including plastic waste and pollution in the oceans and freshwater systems. The majority of the microplastic studies focused on lakes, bay, fish, mollusks, and air. Only a few studies of microplastic contamination in table salt have been conducted. Thus, an assessment of microplastic contamination in the table salt of Romblon was conducted. Table salt from 17 municipalities was assessed to detect microplastic contamination. Microplastics found were identified and quantified using the microscopy method. Results revealed that all table salt being consumed by Romblomanon were contaminated by microplastics, specifically polyesters (PES), polyethylene (PE), polyethylene terephthalate (PET), polystyrene (PS), and polyamide (PA). The table salt consumed in Romblon province was dominated by Polyester (PES) microplastic, comprising 91%. The highest Polyester (PES) concentration was observed in Concepcion with 323 microplastic per gram of table salt.

Keywords: contamination, microplastics, polyesters, Romblon, table salt

Marine Macrophytes Community Structure and Faunal Associates Diversity in the Island of Alad, Cobrador, and Logbon

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Although Alad, Cobrador, and Logbon islands are rich in marine biodiversity and located in an important corridor passage in the Philippines, studies on its marine macrophytes faunal associates are based on the published information. Hence, this study was conducted to assess, identify, and determine the species composition, distribution, status, abundance, and diversity of marine macrophytes and faunal associates using English et al., (1997) survey method. A total of 117 species of marine macrophytes and 68 macroinvertebrates were identified from the three islands, including economically valuable species. All study areas were dominated by economically important sea urchins (*Diadema setosum* and *Tripneustes gratilla*). The seagrass and seaweed beds of three islands were dominated by *Thallasia hemprechii* and *Cymodocea rotondata*. Since the study was conducted in the shallow area and during the rainy season, surveyed in the deeper area and summertime is hereby recommended to collect new species of macrophytes and macroinvertebrates.

Keywords: diversity, dominance, marine macrophytes, macroinvertebrates, Romblon Island

Morphological Characteristic of Big-Eyed Scad (Selar crumenophthalmus) Caught in Romblon Passage, Philippines

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More than half of the municipalities in the Philippines are located along the coast, and nearly all major cities are situated in the coastal areas. The increasing population growth rate is leading to conflicts regarding the use of resources, and the concentration of development activities is putting significant pressure on the coastal areas. This pressure has been observed in Romblon Passage since 2013 and considered as the most exploited fishing ground in the country. This has led to the decline of marine resources such as big-eyed scad (*Selar crumenophthalmus*) in the area. This trend in the fisheries sector is concerning, hence the conduct of this study. Morphological characteristic of *S. crumenopthalmus,* such as length at maturity, and length-weight relationship, collected from the local fish market and fish landing area of San Agustin, Calatrava, and Romblon, Romblon were assessed. A total of 3,376 specimens were collected from June 2022 to March 2023. Samples were ranging from 102.7 mm to 230.7 mm while body weights ranged from 26.42 grams to 150.69 grams. The highest morphometric and meristic characteristics were observed in Calatrava. The lengths at 50% maturity of *S. crumenophthalmus* were estimated at 170 mm and 163.8 mm. The peak of maturity was observed in March 2023. The length-weight relationship of *S. crumenophthalmus* was 2.98 indicating isometric growth pattern. Information in this study may be used to formulate effective management strategies to ensure sustainability of the *S. crumenophthalmus,* and relevant source of data for related study.

Keywords: Selar crumenophthalmus, Romblon Passage, morphometric, meristic

Marine Macrophytes Community Structure and Faunal Associates on the Southern Coast of Tablas Island (Sta. Fe, Ferrol, and Looc)

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Most of the researchers across the country focused on the terrestrial biodiversity, particularly on Sibuyan Island making marine biodiversity one of the underrated research areas in Tablas Island. Studies on its macrophytes' biodiversity are scant; thus, this study was conducted to determine the species composition, diversity, and dominance of marine macrophytes and the relative abundance of macroinvertebrates associated with three municipalities, namely Sta. Fe, Ferrol, and Looc. Based on the result of the study, macrophytes in the shallow water of the Southern Coast of Tablas Island have 113 species recorded, including the new record of a red algae species in the Philippines and additional 36 species recorded in the province. A total of 65 species of macroinvertebrates were likewise recorded. The substrate of the Southern Coast of Tablas Island dictates the dominance of seagrass species in the area. Economically valuable species with potential for commercial cultivation were present in the survey area. This study recommends another survey on deeper areas during summer time.

Keywords: marine macrophytes, macroinvertebrate, percent cover, relative abundance

Food and Feeding Habit of Big-eyed Scad (Selar crumenophthalmus) caught in Romblon Passage with Notes on Endo and Ecto Parasites

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This study analyzed the gut content of Big-eyed Scad (*Selar crumenophthalmus)*, the food and feeding habit, and the occurrence of endo- and ectoparasites. This study was conducted from June 2022 to March 2023 in Romblon Passage, Philippines. The samples were bought from three landing sites of San Agustin, Calatrava, and Romblon and brought to RSU-San Agustin Campus for analysis. This study aimed to determine the feeding intensity, index of relative importance, percentage by weight, frequency of occurrence, and percentage by number, and determine the occurrence of endo and ectoparasites of big-eyed scad. A total of 3,376 samples were examined, 3,319 or 98% of the total samples had content in their stomach, while 57 samples, or 2% had an empty stomach. This study revealed that fish are observed to be the bulk density and shows to be the most important prey and preferred prey items, preceded by the crustacean. Thus, *S. crumenophthalmus* is a carnivorous fish. The ectoparasites like *Norileca indica* were found infesting the branchial cavity of the samples and occurred frequently in Calatrava. Meanwhile, nematode (*Anisakis* sp.) is found in the intestine and occurrs frequently in Long Beach. It is recommended to conduct the same study in other parts of the Philippines, for information regarding the food and feeding habit of big-eyed scad.

Keywords: Selar crumenophthalmus, food and feeding Habit, endoparasites, ectoparasites

Reproductive Biology of Big-eyed Scad (Selar crumenophthalmus) caught in Romblon Passage, Philippines

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Big eyed Scad (*Selar crumenopthalmus*) is one of the pelagic fishes being exploited in Romblon Passage thus, a study of sex ratio, gonadal stages, gonadosomatic index, and fecundity was conducted to determine its reproductive aspect. A total of 3,376 samples were collected from three different municipalities – San Agustin, Calatrava, and Romblon, for ten months. There were 1,458 males, 1,556 females and 362 undetermined. The sex ratio of *S. crumenopthalmus* in Romblon Passage is 1:1. This small pelagic fish can spawn whole year-round. The spawning peaks were observed from February to March based on the gonadal stages, fecundity and gonadosomatic index that was observed. The gonadosomatic index of males ranged from 0.32-2.32 with an average of 1.02. Meanwhile, the female GSI ranged from 0.73-3.07 with an average of 1.52. Fecundity ranged from 7,016 and 257,754 with an average of 48,320. Thus, this study recommends implementing a closed and open season in the spawning period to secure the matured Big-eyed Scad to give it a chance to spawn and grow in population. However, public consultation should be done before its implementation.

Keywords: reproductive Biology, Big-eyed Scad, fecundity, gonadosomatic index, sex ratio

Mapping the Coast of San Agustin for Kappaphycus striatus Farming Potentials: A Preliminary Study

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Romblon State University – San Agustin Campus

Seaweed farming is an emerging industry in the southern Tablas Island (e.g., Looc and Sta. Fe). The presence of local traders/exporters in the province ensures the marketing aspects of seaweeds in Romblon. However, stable production of a minimum production of three (3) tons per month is required by these traders. Hence, this study aims to assess the quality of waters and their suitability for seaweed cultivation on the coast of San Agustin Romblon. The environmental parameters of water quality measured were water temperature, salinity, pH, DO, turbidity, phosphate, water depth, and water movement. The quality of coastal waters is analyzed descriptively and compared with seawater quality standards for marine macrophytes. In contrast, the suitability of the waters is determined based on the results of the calculation of criteria, scoring, and weighting compiled into the water suitability matrix for seaweed cultivation. Based on the gathered data, ten (10) coastal barangay of San Agustin were suitable (60%, n=6) to very suitable (40%, n=4) regarding water quality parameters. However, it is recommended that the farming site should be approximately 100 meters from the shoreline to meet the required cultivation depth of *K. striatus*. Lastly, this study is preliminary and may need to be more accurate with environmental analysis due to the limited sampling.

Keywords: QGIS, macrophytes, seaweeds, San Agustin

Habitat Preference of Dicrurus menagei in Tablas, Romblon: A Bioclimate-Based Maximum Entropy Approach

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Romblon State University – College of Arts and Sciences

Tablas Drongo (Dicrurus menagei), known for its distinctive long scissor-like tail, is classified as critically endangered by the DENR Administrative Order (DAO 2019-09) due to its threatened habitat and for having a very small range of population. In this study, Maximum Entropy (MaxEnt) was employed to develop a bioclimate-based species distribution (SDM) of Tablas Drongo from data recorded through field surveys conducted in Tablas Island from 2017-2018. The calculated area under the curve (AUC) values were 0.983, indicating the model's high predictive power. The minimum temperature of the coldest period was the highest relative contribution to model development. Response curves produced by Maxent suggested the positive influence of mean temperature of the wettest quarter and the negative influence of the mean diurnal range on habitat preference. The final MaxEnt for Tablas Drongo projected high probability of distribution in Tablas, Romblon, where the bird species is known to be endemic. The result predicted the two other hotspots within the Philippines, particularly in Cuyo, Palawan and the island of Batan, in Batanes with non-zero distribution probabilities could be considered as potential habitat areas for this species. The study suggested that the information provided be used for conservation efforts and protection purposes of Tablas Drongo, and its preferred habitats to promote ecological balance in the Philippines.

Keywords: Dicrurus menagei, Maximum Entropy, species distribution, habitat, ecological balance

Ethnobotanical Survey of Medicinal Plants used by Ati tribe in San Jose, Romblon, Philippines

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Medicinal plants have been used for therapeutic purposes since antiquity all over the world. Herbal or therapeutic plant use is said to be as old as human history. Conducting this study will provide the idea and information to further study the possibilities of herbal plants for ethnobotanical purposes, identify new research priorities, and discover new medicinal plants. This study aimed to gather data on well-known medicinal plants used by the Ati tribe in Barangay Lanas, San Jose, Romblon. A semi-structured interview was used to gather data from Indigenous Peoples (IPs) regarding the various ethnobotanical components (illness, plant parts used, mode of preparation and application, dosage of application, duration of application) in every medicinal plant. This study found that headache is the most common illness treated by medicinal plants. Leaves are the most commonly used plant parts by indigenous people. Decoction is the most common method of preparing and applying medicinal plants to cure illnesses. The indigenous people used a variety of dosages based on their patients' age, gender, and disease. Indigenous people are advised using medicinal herbs three times a day for the therapy until they totally recover. *Oreganum vulgare*, often known as oregano, has the 70% usage value and is used to cure coughs, colds, and headaches. Future research on the Ati tribes in other barangays of San Jose, Romblon, Philippines is recommended.

Keywords: ethnobotany, medicinal plants, survey, Ati tribe

Microbial Presence in Water Dispenser at Romblon State University - Main Campus

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Water dispenser was used by people as a source of drinking water. Most water dispensers have no cleaning maintenance, and bacteria may be present. Contaminated water can cause gastrointestinal illnesses after consumption. *Escherichia coli* has virulence features and shows symptoms leading to waterborne diseases. This study aims to determine the presence of *E. coli* in the microbial culture samples collected from the nozzle of water dispensers of different colleges/institutes at Romblon State University–Main Campus. Nutrient broth (NB) for the initial test and eosin methylene blue (EMB) agar were used for the final test on identifying the bacterial presence. Gram staining was used to identify the bacterial type and shape for a confirmatory test. The result shows that the bacteria from different nozzles of water dispensers grown in EMB agar culture media were observed in all colleges/institutes. *Staphylococci*, *streptococci*, and some *listeria* species are some bacteria included in gram-positive bacteria. *Enterobacter*, *Salmonella*, and *Pseudomonas* species are some bacteria included in gram-negative bacteria. Bacteria from the College of Agriculture, Fisheries, and Forestry (CAFF) in normal temperature water dispenser nozzle observed Gram-negative (*diplococci*) bacterium, College of Business and Accountancy (CBA) in normal water dispenser nozzle observed Gram-negative rod-shaped bacterium, and Institute of Information Technology (IIT) in normal water dispenser nozzle observed Gram-negative (*cocci*) bacterium. Further studies are needed, like molecular identification of bacterial isolates to identify the presence of *E. coli* from water dispensers in the said university.

Keywords: water dispenser, microbes, E. coli, gram staining, EMB agar, nutrient broth

Distribution, Abundance, and Composition of Macroplastics Litters along the Coastal Areas of San Agustin, Romblon

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This study was conducted to determine the status of plastic litter in the 15 barangays of San Agustin, Romblon. The result of this study showed that there was a total of 990 items of plastic litter collected over a cumulative area of 2,064 m^2 of 15 coastal barangays of San Agustin, Romblon, with a density of 6.94 item per m^2. The highest density of macroplastic litter was recorded at Brgy. Dubduban, Camantaya, and Long Beach, wherein frequent beach activities occurred and have the greatest number of coastal settlers. Food packaging (38%, n=373 items) was found to be the most frequent plastic litter, followed by polyethylene bags, plastic bottles, and plastic cups. Based on the Clean Coast Index (CCI), the coast of San Agustin has 80% (12 out of 15) were considered very clean to moderately clean, while the remaining areas were categorized as dirty to extremely dirty. Hence, a stricter plastic waste policy was recommended for maintaining the clean status of coastal areas of San Agustin Romblon.

Keywords: macroplastics, Clean Coast Index (CCI), marine litter

Response of Lettuce (Lactuca sativa L.) to Different Fermented Fertilizers under Non-Circulating Hydroponic Kratky System

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Nutrient solution concentration is one of the most practical and effective ways of controlling and improving crop's yield and nutritional quality of crops for human consumption. The study was conducted to determine the response of lettuce (*Lactuca sativa* L.) to different fermented fertilizers under non-circulating hydroponic Kratky system. The Complete Randomized Design (CRD) with four treatments and three replications was used to test the following treatments: T1 - 0.075L SNAP solution: 30L water, T2 - 2L FPJ: 30L water, T3 - 2L FFJ: 30L water, and T4 - 2L FAA: 30L water. Data were analyzed through Analysis of Variance (ANOVA) for the significance test and Tukey's Pairwise Comparison to further interpret the mean. Based on the study's findings, there were significant differences in the growth and yield characteristics of lettuce to different fermented fertilizers in terms of plant height, leaf length, leaf width, leaf area, number of leaves, and plant yield per treatment. However, the fresh weight of lettuce showed no significant differences. Lettuce grown in treatment 1 consistently produced the tallest, longest and broadest leaf, the most number of leaves, and the heaviest fresh weight. In the absence of SNAP solution, Fermented Plant Juice can also be used as a nutrient solution for hydroponics, as they are significantly the same from each other in terms of plant height, leaf length, leaf width, leaf area, leaf number, and fresh weight.

Keywords: lettuce, Kratky system, fermented fertilizers

Factors Affecting the Productivity and Profitability of Backyard Swine Production: An Assessment

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Pork production has become a viable source of income in the Municipality of Odiongan, with backyard or small-scale operations dominating. A supply scarcity is inevitable despite the diversity of backyard pig production. This study aimed to determine the limiting factors affecting the productivity and profitability of backyard swine production in the Municipality of Odiongan. The non-probability type of sampling method was used to determine the sample size of the study through the 2021 inventory of the Municipal Agriculture Office. Survey method through self-administered questionnaires and face-to-face interviews with the respondents were used to gather the needed data in this study. Descriptive statistics such as percentage, frequency, and weighted mean were used to analyze the data. This study found that most backyard pig farmers were women between the ages of 46 and 55, and that they rely solely on their personal experience as a source of pig-raising knowledge. Inconsistent record keeping and production monitoring, and problems with meager market prices for lightweight piglets, were also identified as limiting factors. These limiting factors threaten backyard pig farmers, reducing their productivity and profitability. Developing solutions to these problems and issues, such as additional assistance beyond the scope of existing extension services, may aid existing backyard pig farmers and encourage aspiring pig farmers to pursue this business, to expand the industry and ensuring a sustainable pork supply for the growing population of the Municipality of Odiongan, Romblon.

Keywords: productivity, profitability, backyard swine raising, limiting factors

Impact and Evaluation of Agricultural Organic Wastes in the Soil Ph Level of Rice Paddies in Pinamalayan, Oriental Mindoro

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This study, conducted in Pinamalayan, Oriental Mindoro, aimed to investigate the effects of different agricultural waste materials on the pH level of rice paddy soils. The study period spanned from January 23, 2023, to February 19, 2023. Three research questions were addressed: 1) What is the average pH level of soil in rice paddies at Bacungan, Anoling, and Buli? 2) How does the applying apple snail shell powder and rice straws affect the pH level of rice paddy soil? and 3) Are there significant differences in the soil pH level before and after applying apple snail shell powder and rice straws? The study followed an experimental research design, incorporating a hypothesis, manipulated and measurable variables. Two treatments were employed, involving the application of rice straws and apple snail shell powder to soil samples. Soil pH measurements were taken before and after applying organic amendments at 1 week, 2 weeks, and 3 weeks intervals. Significant differences were observed between the two organic amendments. While the pH of the soil gradually increased with the application of rice straw, after 3 weeks of observation, the pH remained in the acidic range. Conversely, applying snail shell powder initially resulted in slightly acidic pH values ranging from 5.08 to 6.08. However, after three weeks, the pH increased above 7. These findings hold practical implications for farmers, highlighting the potential use of cost-effective and eco-friendly agricultural waste materials to manage soil acidity in rice paddies.

Keywords: rice paddies, waste, soil pH, rice straws, apple snail shell powder

Effectiveness Level of Improvised Rice Hull and Charcoal Chick Brooder for Cobb 500

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Romblon State University – Cajidiocan Campus

Brooding refers to providing warmth, fresh air, clean feed, and water to newly hatched chicks for the first four weeks of their lives. Since day-old, chicks lack subcutaneous fat, have undeveloped feathers and cannot regulate their body temperature until they are 2-4 weeks old making them vulnerable to cold temperatures. To address this issue, researchers conducted a study about using of charcoal and rice hulls as alternative chick brooders. The study aimed to determine the effectiveness of this improvised brooder compared to using an incandescent lamp by matching the experimental and control groups on variables such as litter management, temperature, air quality and ventilation, access to water, access to feeds, lighting, and brood house structure. Farmer respondents evaluated the effectiveness of the alternative brooding method using a five-point rating scale. The results showed that the improvised rice hull and charcoal brooder was highly effective in managing litter, maintaining temperature, ensuring good air quality and ventilation, providing access to water and feed, and optimizing lighting and brood house structure. The researchers concluded no significant difference in the effectiveness of the improvised brooder and the incandescent lamp as a chick brooding method.

Keywords: chick brooding, rice hull, charcoal, improvised brooder, effectiveness


EDI
ENGINEERING, DEVELOPMENT AND INNOVATION

Engineering, Development and Innovation (EDI)

Web-Based Alumni Tracer with Inferential Data Analytics for Romblon State University, Romblon Campus

Lian Alejandro Tan, Philip Andree Madula, Michael John Malipot, Jonas Vicente, Llabore Abel Navarro, & Joy Mariz M. Mindoro – Mesana

Romblon State University – Romblon Campus

This study focuses on gathering the information of the alumni of Romblon State University, Romblon Campus, Bachelor of Science in Information Technology Course. Also, this research aimed to provide a secure and reliable alumni tracer system. The system verifies whether the alumni are employed or unemployed. The system can also track employability and job alignment, and monitor and update their social status. The proponents used the ISO/ICE 25010; 2011 standard to evaluate the functional sustainability, performance efficiency, reliability, and security of the existing and developed system. Web-based alumni tracer system integrates system application where users can easily access it online and is compatible with any smartphone and other gadgets. It is safe and secure and was validated and pretested accordingly. Battery testing showed that the developed system is efficient as the web-based alumni tracer with descriptive, inferential data analytics system of the campus. Overall, the results showed that the alumni and the admin of each department chair of RSU-Romblon Campus are very satisfied with the development and improvement of the alumni tracer system. The alumni and department chairs agreed that the web-based alumni tracer with descriptive inferential analytics is acceptable and ready to use in Romblon State University-Romblon Campus.

Keywords: job alignment, employability rate, ISO/ICE 25010; 2011, Inferential Data Analytics

Online Internship Monitoring System

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The "Online Internship Monitoring System" capstone project is an online system designed and developed in PHP and MySQL. It is a comprehensive information system designed to manage, record, and track students' progress in their On-the-Job Training course. On this platform, the students were able to submit their daily tasks and Daily Time Record. The primary goal of the "Online Internship Monitoring System" was to eliminate the need for manual record keeping of Student Interns' attendance. Waterfall development was used as the software development life cycle. The proponents used the ISO 25010:2011 standard to evaluate the developed system's functional suitability, performance efficiency, usability, and security. The SIP Coordinator, SIP Supervisor, and 3rd Year Students, of BSIT - Romblon State University's Romblon Campus evaluated the "Online Internship Monitoring System." The findings of the study based solely from the evaluation results showed that the system was excellent to be used as an online internship monitoring system for Romblon State University, Romblon Campus. The results showed that the said application can replace the manual process of recording because it simplifies the process of submitting tasks and checking the student's attendance report.

Keywords: monitoring system, online internship monitoring system, ISO

Engineering, Development and Innovation (EDI)

RSUSAFE: A Covid-19 Website used for Tracking Students' Daily Health Records in RSU – Romblon Campus

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This study aims to develop a COVID-19 website used for tracking students' daily health records in Romblon State University – Romblon Campus. Specifically, it focuses on innovating a COVID-19 mobile website that contains the following features: a) Provide a user-friendly graphical user interface for students; (b) Track the daily health record of students who will participate in the flexible in-face classes; and (c) Generate a personal Quick Response "QR" Code specific for RSU-Romblon Campus only. Additionally, the proposed website focuses on producing adequate and organized consolidated reports. Lastly, this research aims to provide a reliable system that adheres to software and technology engineering standards. The proponents of the study used the ISO/IEC 25010:2011 standard to evaluate the functional suitability, performance efficiency, reliability, and security of the proposed developed COVID-19 website. The instrument was validated and pretested accordingly. The findings of the study showed that the developed system acquired a verbal interpretation of "Strongly Agree" as an impression of the garnered overall weighted mean of 4.58 acceptability rate.

Keywords: QR code, tracking website, user-friendly GUI, consolidated report, standard

Engineering, Development and Innovation (EDI)

Document Management System (DMS) for Office Documented Information Management Officer

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Romblon State University – Romblon Campus

This study aims to design and develop a Document Management System (DMS) for Office Documented Information Management Officer at Romblon State University (RSU), Romblon Campus. RSU-Romblon Campus, as one of the satellite campuses, has been using a manual system for logging and filing documents during ISO compliance, and some issues throughout the process need to be improved. The main objective of this study is to develop a web-based system intended for recording incoming and outgoing documents. This system will be used to warehouse the documents needed for the ISO certification, which will make tagging, editing, deleting, and printing available. The waterfall model was used in the development of the system. PHP and JavaScript were used as the programming language, while MySQL as the database management. In this paper, the parameters used for logging in the documents were based on the outgoing/incoming logbook for ISO. Furthermore, the results of this study show the (1) Design of a system that is accessible online by the Process Owners/Unit Coordinator, (2) A system that can file documents according to ISO standards, (3) A system that can transform the paper document into electronic form, (4) A system that enables the user to search a document for easy retrieval and present to the ISO auditors, and the (5) Acceptability result of the system using ISO 25010:2011, applying this system to RSU-Romblon Campus and other satellite campuses.

Keywords: Document Management System, ISO 9001-2015, ODIMO, Process Owners, QMS

Engineering, Development and Innovation (EDI)

New Normal Wearable Device Prototype: A New Normal Way of Identifying Social Distance

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Romblon State University – Romblon Campus

This study designed and developed a device prototype using Arduino, a device that maintains the social and physical distancing measures inside the campus of Romblon State University. Researchers started to think about this system during the pandemic. Many innovations have been created to help combat and reduce the spread of the deadly disease. A plethora of devices are created to combat or reduce the spread of the virus; one of these is the use of the power of Arduino. The study used a prototype model in designing and developing a device prototype system. The developers used the Likert scale to establish the interval between the questionnaire's rankings. This calculated the level of satisfaction and the average evaluation result. During the battery test, many respondents mentioned that the system is excellent and effective. Faculty, staff, and students benefited a lot from this project. Furthermore, the results of this study showed that (1) The prototype that can collect the distance as inputs to the warning device for the 1- meter social distance. (2) The system can provide a warning signal informing the user that a 1-meter distance was violated. (3) The prototype can capture images and can send a notification (email) to the guard on duty. With regards to the acceptability of the system using ISO 25010:2011, it has a weighted mean of 4.8 and the result obtained was "excellent". Therefore, applying this system to the mentioned campus is proven effective.

Keywords: Arduino, prototype model, Likert scale, social distancing, new normal wearable device

Mobile Poultry Product Ordering System with Notification for Romblon, Romblon

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Romblon State University – Romblon Campus

This study aimed to develop and enhance the current process of buying and selling poultry products in Romblon, Romblon, by providing a reliable mobile poultry ordering system. Specifically, it focused on reducing the time and effort consumed by both seller and customer in the buy and sell process through a mobile application capable of processing the selling and ordering of poultry products. In developing the application, researchers interviewed the poultry farmers regarding the common problems they experienced to establish the process used to identify, prioritize, and precisely formulate and validate the data needed. Results showed that this system performs better than the traditional way in terms of convenience in marketing their products and much faster to reach the customers. In addition, this capstone project aimed to provide the participants a reliable mobile poultry ordering system. The proponents used the ISO: IEC 20510: 2011 standard to evaluate the functional suitability, performance efficiency, reliability and security of existing developed system. The instrument was validated and pretested accordingly. The finding of the study showed that the developed system was excellent and ready to be used as a new platform to promote poultry businesses. Overall, the developed system showed that the poultry sellers and customers in the municipality of Romblon were very satisfied with the developed application whom most of them preferred the mobile poultry ordering system than the traditional way.

Keywords: Poultry Products, Mobile Applications, Mobile Poultry Ordering System, transitioning

Online Water Billing Management System with Notification for RWD

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Romblon State University – Romblon Campus

This paper will provide a detailed explanation of how this improvement system replace their manual system. It will explain how the system will automatically calculate the monthly bills and send them to the rightful owner without any mistakes or errors. It will explain how the system could process the payment using GCash with a QR code and send the receipt to the consumer's account, which can print both parties' bills and receipts. Furthermore, it will explain how the system can handle all the consumer feedback or messages to the admin and how the billing and payment records are safe and secured. The developer used PHP Language for web development, MySQL as a database engine and Xampp Control Panel Application for efficient software management in the proposed system. Moreover, a Visual Studio Code Application, a streamlined code editor, is used for creating the proposed system. The developer's methodology is the SDLC - Sashimi Waterfall Model; SDLC methodologies provide a systematic framework to design, develop and deliver software applications. The sashimi process organizes a waterfall with feedback, letting the user return from the last phase if a problem is encountered in the next one. Software Development is divided into 7 phases: planning, analysis, design, development, testing, deployment, and maintenance. Based on the evaluation results, by getting the total weighted mean from 51 respondents composed of 1 admin and 50 respondents, the overall system evaluation results in 4.75 total weighted mean which is equivalent to excellent.

Keywords: Water Billing, Monthly Bill, Manual System, RWD, Corporation

Acceptability of Aloe Vera (Aloe barbadensis, (L.) Burm. F) Leaf Gel and Lemon Grass (Cymbopogon citratus, Staft) Oil as a Home-Made Hand Sanitizer

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Germs are microorganisms that can cause infectious diseases. Aloe vera, (*Aloe barbadensis*, (L.) Burm.f) a part of the Asphodelaceae family – distinguished by its thick leaves, is well-known for its therapeutic benefits. Lemon grass (*Cymbopogon citratus*, Staft) is a perennial grass under Poaceae family, characterized by its lemony flavor and aromatic features. This study was conducted to determine the acceptability of aloe vera leaf gel and lemon grass oil as a home-made hand sanitizer. Specifically, this study seeks to answer the acceptability of home-made hand sanitizer in terms of color, viscosity, smell, texture, transparency, and moisture. This study was composed of four treatments to determine the acceptability of the different amounts of aloe vera leaf gel and lemon grass oil. The experimental treatments were as follow: treatment 1 (control – commercial hand sanitizer), treatment 2 (88 mL of aloe vera leaf gel and 5 mL of lemon grass oil), treatment 3 (118 mL of aloe vera leaf gel and 10 mL of lemon grass oil), and treatment 4 (148 mL of aloe vera leaf gel and 12 mL of lemon grass oil). The results of this study said that treatment 2 was the most acceptable among all treatments with an overall response score of 7.72, Further studies are needed to improve the quality of homemade hand sanitizer researchers to increase the acceptability level and study their marketability.

Keywords: acceptability, Aloe Vera, Lemon grass, hand sanitizer

Proposed Design of Satellite Market in Guinbirayan, Santa Fe, Romblon

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The public market serves as an incubator for small firms and motivators of new coalitions between government agencies, consumers, and producer organizations (Visconti, et al., 2014). However, the absence of a public market affects the economic growth of one locality. The researchers observe that barangay Guinbirayan had difficulty in accessing foods and products and had inadequate facilities in poor condition, thus this study is conducted to address the problem. In this study, researchers proposed a design of solar powered satellite market in Barangay Guinbirayan, Santa Fe, Romblon that conforms to the building codes and guidelines. Furthermore, the identification of potential producer and consumer, as well as the program of works (POW), detailed engineering estimate, precedence diagram, S-curve, Gantt chart, and the estimated total cost of the proposed project included to be presented. The feasibility of the proposed building and the potential occupants are determined through a conducted survey of random respondents within the involved barangays. Building design features incorporate sustainable design for occupants and local administration, comprising (a) PWD-friendly comfort rooms, (b) adequate market stalls, (c) administration office, (d) maintenance room, (e) solar panels, and (f) ramps. Despite the limited lot area, researchers arrived to design two-story market, sufficient to accommodate the residents and nearby barangay households. The estimated proposed two-story satellite cost was seven million three hundred thirty-seven thousand, nine hundred sixty-two pesos and thirteen cents (Php 7,337,962.13) within an estimated 132 days. The researchers concluded that the proposed design satellite market in Guinbirayan would greatly help the buyer and seller of wet and dry commercial goods in four (4) barangays – the Danao Norte, Danao Sur, Guinbirayan, and Guintigbasan. Thus, the researchers highly recommended implementing the proposed satellite market soon.

Keywords: satellite market, building design, solar power

Development of e-Reserve: An Android-Based Boat Reservation System with In-App and Push Notifications for the Municipality of Corcuera

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The need for utilizing mobile-based technology to boost operational performance is increasing. Numerous researchers have proved the efficiency of mobile-based technologies in assisting operational performance. The boat manifest registration for Corcuera's passengers is still done manually. This kind of system is very time-consuming for the passengers due to the need to wait in a long line. This study aimed to develop e-Reserve, an Android application that will allow passengers to check boat availability, reserve a passenger manifest slot online, and be notified about boat trip schedules and cancellations through an alert system that can generate alerts and send notifications to corresponding recipients efficiently by integrating Firebase Cloud Messaging and in-app notification. In developing the mobile application, the researchers used the agile model for its flexibility with system requirements. Based on the results gathered using the user acceptance testing, all 31 respondents gave the same response: they all approved that the menus of the application met the expected output without bugs or errors as they tested the application. In light of the findings, the proponents conclude that the e-Reserve application has met the project requirements and passed the testing stages.

Keywords: alert system, android application, Firebase cloud messaging, in-app notification

Design and Development of ROMELCO Web-Based Electric Billing System with SMS Notification

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The billing system serves a variety of different functions in addition to serving as a record of transactions. Romblon Electric Cooperative, Inc. (ROMELCO) is the exclusive provider of electricity services to several islands of Romblon. ROMELCO was incorporated and registered with the National Electrification Administration (NEA) on June 14, 1989 under PD 269 romelcoinc.com (2020) provisions. ROMELCO aims to become a highly competent electric utility and catalyze the area coverage's development and industrialization. As of today, ROMELCO offices are located in the following municipalities of San Fernando, Cajidiocan, Magdiwang, Banton, and Corcuera. As the number of ROMELCO consumers grows, there are perceived issues in preparing statements of accounts. There are instances where the consumer is not aware of the payment schedule because they could not receive their due electric billing statement caused by the delayed distribution of bills. This study is conducted to improve the delivery of electric bills by providing SMS notifications as an alternative way of notifying or distributing information to consumers. In developing the web application, the researchers used the agile model, as it is flexible with system requirements. The system was evaluated by a total of 30 respondents consisting of 29 consumers and the admin from ROMELCO Magdiwang using ISO 25010:2011. The result shows that the respondents accepted the web application with an overall average weighted mean of 4.86, passing the acceptance criteria and expectations. This means that the system's functionality works suitably for both consumer and admin.

Keywords: agile model, billing system, ISO 25010:2011, SMS notification, web application

Engineering, Development and Innovation (EDI)

iSenyas: A Basic Filipino Sign Language Educational Mobile Application for Deaf and Mute in the Municipality of Odiongan

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Many people are familiar with sign language, a popular communication channel based on gestures. It is the type of language directly associated with deaf and mute persons. Despite this, most people are not educated enough to understand sign language, necessitating an interpreter to aid communication. The Philippines is an example of a country that is still at the beginning of the FSL, or Filipino Sign Language, which evolved from and primarily adopted Asl. FSL is a unique language with its grammar, syntax, and morphology; it is neither based on nor resembles Filipino or English. The proponents had developed iSenyas as android mobile application learning material to help the deaf and mute in the municipality of Odiongan to learn in their language. This mobile application learning material comprises different pictures and videos of basic Filipino sign language to help the deaf and mute visualize the language. The iSenyas application is only available for Android users. This application is created using Cordova. The mobile application is accessible offline that runs on mobile and tablet devices with the requirements of 2Gb in memory. Also, this application has passed the different testing stages like functionality testing, user's acceptance test, and the ISO 21500:2011 evaluation.

Keywords: android mobile application, android versions, ASL, Cordova, FSL, ISO 21500:2011

BISAMS: Broiler Inventory and Sales Management System for Small Broiler Farm in Gabawan

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Web-based inventory management systems offer numerous advantages that are difficult to obtain using paper methods or an in-house spreadsheet. This study has been made to help the farm owner, who uses Microsoft Excel to track sales and inventory. The current technology used by the farmers is manual inventory systems, and may bring a whole host of problems and take a significant amount of time to do the work, and risk human error. Having an inventory system and automation avoids human error saving endless hours of work. The researchers developed the Broiler Inventory and Sales Management System (BISaMS) to help small broiler farm owners record important business data like expenses, sales, and reductions, track broiler batch and feeds quantity, and generate reports accordingly. The researchers chose the Agile model to develop the system. In the web server, AJAX and PHP were used to handle the request and response and to display the necessary information needed by the users. Also, MySQL was used to support the database of the whole system. BISaMS was evaluated through User Acceptance Testing conducted by the owner of the broiler farm and his operator. The owner acts as the administrator and the operator as the user. The different divisions of system, login, account, record, sales, and inventory, were tested against their acceptance criteria. The result shows that every task work suitably for both actors. The system has considerably reduced the hassle of managing expenses, sales, reductions, and other relevant data. It also has solved the problem of tracking the inventory of chicken parts and the number of broilers deducted per reduction reason.

Keywords: Agile method, AJAX, MySQL, PHP, user acceptance testing

Engineering, Development and Innovation (EDI)

Three-Layer Authentication for Motorcycle Security Alarm System

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This research aimed to design and develop the three-layer authentication for motorcycle security alarm system of Bachelor of Science in Information Technology of Romblon State University-San Fernando Campus. Specifically, this study aimed to develop a system that could start the motor engine through a fingerprint sensor and automatically trigger motorcycle's alarm when it is stolen. The proponents identify the respondents based on their profile, such as age, sex, address, and position. The system was evaluated by the faculty and student of Romblon State University – San Fernando Campus based on its functional suitability, reliability, usability, performance efficiency, maintainability, and security using weighted mean that could be considered as a scale of strongly agree based on the evaluation result. Based on the result, the researcher concluded that the three-layer authentication for motorcycle security alarm system greatly benefited the staff, teachers and students who own a motorcycle.

Keywords: alarm system, authentication, development, motorcycle, security

Engineering, Development and Innovation (EDI)

Development and Evaluation of Lipstick from Atsuete (Bixa orellana) Seeds and Calamansi (Citrofurtunella microcarpa) Extract

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This study is about the development and evaluation of lipstick from Atsuete (*Bixa orellana*) seeds and Calamansi (*Citrofurtnella microcarpa*) extract. This research focused on the development of lipstick from Atsuete and Calamansi and evaluated the lipstick in terms of color, appearance, odor, texture, and long-lastingness. It also determined the product's benefits in terms of marketability and safety, and identify at which amount of Atsuete seeds and calamansi extract will be the most effective lip colorant. As for lipstick color, respondents strongly agreed that it is appealing to the eyes, attractive and natural, having uniformity and balance. Regarding appearance, respondents strongly agreed that the product is glossy, shiny, and has a natural look. As to odor, it is pleasant with a fragrant and inviting smell. As to texture, respondents strongly agreed that the product is soft and smooth. The respondents moderately disagreed that the lipstick is matte. As to long-lasting effect/duration, respondents strongly agreed that the product has constancy, holds in place and doesn't stain lasting on lips for 5 hours or more. Almost all respondents checked the "Yes" option as to product attractiveness to community, safety and health-friendly to consumers. They found the product affordable at Php50, best alternative natural lipstick and help to boost consumers self-esteem when used. Most respondents chose the 7 grams Atsuete and 30 ml Calamansi as the most effective lip colorant concentration.

Keywords: lipstick, Atusete, Calamansi, development, evaluation

Web-Based Ordering System for Odiongan Wood and Bamboo Furniture Enterprise

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The Odiongan Wood and Bamboo Furniture Enterprise is a business of different types of furniture shops that handles local products made from wood and bamboo in the municipality of Odiongan. At present, furniture shops do not use any form of system to keep track of their inventory, such as the manual or paper-based system for inventory management. An Online Web-based Ordering System would solve the furniture shops' current issue. The furniture shops, consisting of 18 sellers, would use a website to manage their inventory and business operations. It could help the sellers to place their products into the system, which would benefit them; their products would be widely shared across Tablas Island. It would also be advantageous for sellers to check and counting how much stock is left. The researchers choose the agile development model to follow the process of developing the web-based ordering system. Different software technologies such as PHP, MySQL, JavaScript, CSS, HTML, Windows, XAMPP and Share Hosting Account were likewise to develop this project. Based on the seller's UAt results, 14 out of the 18 sellers that tested the system discovered that all of the modules and functionalities were operating as intended, while 30 out of 30 customers discovered that all of the modules and functionalities were operating as intended as shown in their UAT results. The results of the User Acceptance Testing conducted with the admin, sellers, and customers of Odiongan Wood and Bamboo Enterprise showed that all of the tasks and expected results were met, with a passing rate on the survey.

Keywords: agile development, PHP, share hosting account, user acceptance testing

Road Condition and Traffic Assessment of Odiongan, Romblon Using GIS-Based Mapping

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The transportation system is undeniably changing as social progress. As the municipality of Odiongan in Romblon develops over time, along with the increasing population and transportation demand, so do transportation issues related to road and traffic. Many experts suggested that the foremost step to mitigate the road and traffic problem is identifying its characteristics and present condition. The researchers devised this study to determine the road and traffic conditions of Odiongan and help in addressing the issues in town's transportation sector. The researchers focused on the road condition and traffic assessment in Odiongan, Romblon. It consists of a visual inspection of road conditions, a traffic count survey, and GIS software mapping. The Road Condition Assessment results were used to create a road condition information map for Odiongan roads in order to determine the necessary maintenance. The traffic assessment determined the Level of Service (LOS) for each direction at each station, which reflects the traffic flow condition. The vehicle composition and traffic flow in each station during peak and off-peak hours were also determined. According to the findings of the study, most of the road in Odiongan, Romblon requires preventive maintenance followed by road rehabilitation. The study has explored that motorcycles and tricycles are the most prevalent type of vehicles for peak and off-peak hours. It also revealed that all stations in town have varying levels of service. In addition, signalization and intersection modification are required for the stations with poor levels of service (LOS). This study will serve as a valuable foundation for the efficient transportation planning of the local government and other agencies of Odiongan towards the town's development. As a result, the researcher strongly suggests this road condition and traffic information for the implementation of an effective transportation management plan.

Keywords: transportation, road condition, traffic assessment, GIS mapping

Parking Facility in Romblon State University-Main Campus

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The researchers carried out this study to develop a parking facility deign that could solve the parking issues at Romblon State University-Main Campus. They aim to address parking-related problems, identify parking demand and supply, and classify different vehicles parking inside the campus premise. Furthermore, they aim to assess parking requirements that will be applied and create a scheme for Romblon State University-Main Campus, between May 2022-2023. It focuses on providing a comprehensive plan with various amenities, developed in structural analysis, and cost-estimation of the proposed project. Based on the findings and results, the Planning and Development Office (PDO) of the university recommended the site of the proposed building based on the university's development plan. The site has an area of approximately 2941.6021 square meters. Additionally, it was found out that the average number of four-wheeled automobiles, motorcycles, bicycles, and tricycles parked inside the campus per day was 22, 414, 18, and 16, respectively. Thus, the proposed design incorporates essential amenities and follows the university's design motif which the researchers considered. The designed structure's floor area was approximately 1612.56 square meters. It has a daily capacity for 414 motorcycles and 22 automobiles. The proposed building also has the following: (a) conference room, (b) meeting room, (c) guard house, (d) CCTV monitoring room, (e) mechanical room, (f) electrical room, (g) utility room, (h) comfort room and a (i) green roof. The estimated overall cost of the project was approximately two hundred fifty-one million six hundred seventy-two thousand seven hundred thirty-two pesos (Php 251, 672, 732.00).

Keywords: parking, building design, parking scheme, vehicles

Product Development on Acceptability and Salability of Calabash Fruit (Crescentia cujete) as Concentrated and Powdered Juice: Organoleptic Evaluation

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This study aimed to produce and develop herbal medicine from the Calabash fruit (*Crescentia cujete*), also known as the miracle fruit, and determine its acceptability and salability as basis for business venture. Specifically, it aimed to determine the classification of the respondents and the level of acceptability as to tase, aroma, appearance, texture and salability. Descriptive method and one-shot survey were used to answer the objectives of the study. Results showed that most respondents were students from the third year and second year of Bachelor of Technical-Vocational Teacher Education. Regarding the level of acceptability in concentrated juice, respondents strongly agreed that the taste was moderately sweet, the aroma smelled moderately of calabash and the appearance was attractive. Regarding the level of acceptability of powdered juice, respondents strongly agreed that the juice had a pleasant aroma, the taste was moderately sweet, the appearance was attractive and acceptable, with texture resembling coffee granules. With the level of scalability, the respondents strongly agreed that the packaging was presentable and the price was affordable. Hence, the researchers concluded that this product was good for business ventures.

Keywords: Calabash, concentrated juice, powdered juice, organoleptic evaluation

Engineering, Development and Innovation (EDI)

Acceptability of Nipa fruitican: Product Development and Evaluation

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This study aims to determine the acceptability of nipa fruit by producing different products and submit it for evaluation. The researchers used descriptive research design to evaluate the product development of Nipa Jam and Kaong de Nipa. The percentage was used for the demographic profile of the respondent, and weighted mean was used to evaluate the products. Based on the results, the majority of the respondents were females, aged 21-30 years old and above, and were at least college undergraduates. For the product evaluation, the majority of the respondents strongly agreed on the appearance, taste, texture and packaging and agreed only on the aroma of the product with natural pleasant odor and inviting smell. The development and evaluation of Nipa Jam and Kaong de Nipa were successful in acceptability in the San Fernando market in Sibuyan Island. The significance in Kaong de Nipa can be an alternative ingredient in halo-halo and the Nipa Jam can be served during breakfast and snack time.

Keywords: acceptability, evaluation, product development, nipa, nipa jame, akong de nipa

SHE - SALM

SOCIAL SCIENCES, HUMANITIES, AND EDUCATION
SUPERVISION, ADMINISTRATION, LEADERSHIP AND MANAGEMENT

Development and Formative Evaluation of Vocabuilder+ as an Instructional Manipulative in Teaching Context Clues

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Using instructional materials in English language teaching is an essential part of the teaching and learning process. Due to this, teachers are expected to introduce instructional materials that aid in teaching the lesson well. This study focused on the development and formative evaluation of Vocabuilder+ as an instructional manipulative in teaching Context Clues. Following the instructional material design framework by Talisayon and Vistro-Yu (1997), the study underwent four processes: identification of least mastered competencies, crafting and design of Vocabuilder+, curriculum alignment, formative evaluation, and Flesch-Kincaid readability tests. Ten grade 8 English teachers and twenty students evaluated the Vocabuilder+ using the DepEd Evaluation material for Print and Instructional Materials. Median, frequency, and t-tests for independent samples were used to analyze the data. The results showed that Vocabuilder+ met the prescribed requirements regarding adequacy, administrability, content, suitability, usability, and acceptability to target users. The Flesch reading ease of the cue cards is 53.0 and the grade level is 8.5 while the game manual has a Flesch reading ease of 60.4 and grade level of 8.3. Thus, Vocabuilder+ is recommended as an instructional material in teaching context clues and promises a potential for a significant contribution to education and learning. Future researches may also be explored, focusing on the effectiveness of the material and use in a class.

Keywords: context clues development, instructional manipulative, Vocabuilder+

Modular Distance Learning: Its Effects to The Prosocial and Emotional Behaviors of Teachers in Cajidiocan Central Elementary School

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This study aimed to determine teacher's prosocial and emotional behaviors during the implementation of modular distance learning at Cajidiocan Central Elementary School. The researchers formulated a questionnaire, validated it, and obtained permission from the Campus Director of Romblon State University to conduct the study. The findings revealed that although implementing modular distance learning was challenging for teachers, they remained resolute in their tasks and became more understanding towards their colleagues, parents, and students. They formed good organizations and demonstrated a broad understanding of things. Despite experiencing fatigue, stress, and frustration, the teachers maintained good relations with each other and continued to serve their students' learning needs. The teachers' practical approach aimed to achieve better outcomes in student performance. The study highlights the significance of teachers' resilience and cooperation in protecting students' welfare during the pandemic.

Keywords: modular distance learning, prosocial behaviors, emotional behaviors

Comprehensibility and Forensic Stylistic Analysis of Government Scholarship Contracts: Advocating the Use of Plain English in Legal Writing

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One contentious and controversial issue in forensic linguistics is the ambiguity of the language used in legal documents. For laypeople, it is complex and too complicated to understand. Comprehensibility of language, therefore, must be adhered to ensure that the clients can understand what is written on the legal documents since it constitutes a severe challenge for the layman. Hence, this mixed-method study sheds light on the following questions: (1) What are the linguistic features of the government scholarship contract? (2) To what extent do scholars understand the government scholarship contracts? Using cloze test and stylistic approach, guided by Gibbon's (2012) Communication Evidence framework as a lens to analyze the data, this research focused on the comprehensibility of government scholarship contract. Ten (10) scholars participated and asked their consent to undergo cloze test. Findings revealed that linguistic features abound in the contract are binomial expressions, generic/cognitive structuring, legal archaisms, modality, negation, sentence length and complexity, and specialized, distinctive, and technical legal lexis. All these features were found to occur more than ten (10) times in the contracts, which may cause ambiguity to the readers. On the other hand, using the cloze test to determine the comprehensibility of the corpus, it was found that the majority of the participants fell to an instructional level while one of the respondents got into a frustration level. Thus, it is hoped that this study will act as a springboard for possible simplification using plain English in legal writing.

Keywords: comprehensibility, stylistic analysis, scholarship contracts, legal writing

Social Sciences, Humanities and Education-Supervision, Administration, Leadership and Management (SHE-SALM)

Improving Reading Skills through the Use of Picture Story Book in Grade 1 at Long Beach Elementary School, SY 2022-2023

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Reading is a crucial skill for students to acquire. It is a competency necessary for communication and is characterized as a cognitive process that includes translating images into meaningful ideas. This action research was made to understand the reading difficulties of Grade 1 pupils who were identified as lagging behind readers and had low academic performance. It aims to develop and assess the target participants' reading readiness deficiency level and develop appropriate actions based on their needs and abilities. This study also determined the lessons learned in teaching low-performing students and provided recommendations to help manage students who are poor readers. This action research was conducted in Long Beach Elementary School, Long Beach, San Agustin, Romblon. Twelve Grade 1 pupils were chosen out of 46 pupils. Each researcher handled three pupils and addressed their reading concerns by conducting interactive remedial reading sessions to aid the development of reading readiness levels through picture storybooks. Appropriate teaching materials and teaching strategies were implemented. Flashcards, alphabet picture books, and storybooks were used in every activity. A pre-test and post-test of Letter Sound Identification was administered to determine the improvement and changes in reading skills and behaviors and it shows a significant improvement. It was concluded that the successfully improved the reading readiness level of pupils as shown in the pupils' post-test evaluation. The study recommends using storybooks in remedial reading sessions in the Elementary level.

Keywords: reading skills, interactive instruction, remedial reading, reading deficiency improvement

Reciprocal Teaching Strategy for Reading Comprehension Development of the AB English Language Students

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The pandemic has had a significant adverse effect on people's reading skills (Roque, 2023). The crucial component of reading comprehension is understanding the meaning of the text, not just being able to read words on a page accurately. To alleviate the stated problem, the researchers utilized Reciprocal Teaching Strategy (RTS) to see if this could help students' difficulties in reading comprehension. This strategy gets students more involved throughout the reading process, helping them stay engaged thereby improving their comprehension skills. This quantitative paper sought answers to the following questions: (1) *What are the reading comprehension test results before and after applying Reciprocal Teaching Strategy?* (2) *Is there a significant effect on applying the Reciprocal Teaching Strategy on the students' reading comprehension?* Researchers used the Interactive Theory of Muray to explain how the reader and text communicate while reading. It is worth noting that utilizing the Reciprocal Teaching Strategy has successfully improved students' reading comprehension. Ergo, the RTS could be one of the best ways to recommend to students who experience reading comprehension difficulties.

Keywords: Reading Comprehension, Reciprocal Teaching Strategy, Interactive Theory of Muray

Social Sciences, Humanities and Education-Supervision, Administration, Leadership and Management (SHE-SALM)

Improving Cursive Handwriting Skills and Legibility of Grade Three Pupils Using Multi-Sensory Approach in Alfredo P. Navarrete Memorial School, Ay 2022-2023.

Angelo M. Madali, Carmela M. Abello, Catcha M. Mayo, & Cyrille Ann M. Largueza
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The study aims to enhance the writing abilities of chosen pupils in cursive writing for uppercase and lowercase letters, writing numerals, manuscript-to-cursive translation, far-point copying, near-point copying, dictation, and sentence composition through conducting intervention using a multi-sensory approach. The research partner volunteers (RPVs) were the eight (8) Grade 3 pupils of Alfredo P. Navarrete Memorial School at San Agustin, Romblon who were identified by conducting screening tests using Evaluation Tools of Children's Handwriting (ETCH) in evaluating the outputs. A self-made cursive handwriting worksheet using the scoring principle of ETCH was given at the beginning of the remedial sessions and after the concluding sessions to determine the changes and development. Multi-sensory strategies were applied in remedial classes, such as writing in sand, forming letters using objects, writing in the air, and writing on the back that was conducted with about 20 sessions in one hour for every session. Results of the study reveal that remedial writing conducted by the student researchers to the research partner volunteers worked, as they exhibited a considerable difference before and after the implementation of the intervention. It is recommended that teachers keep on using the intervention and keep innovating to enhance pupils' writing skills and legibility at other grade levels.

Keywords: implementation, intervention, ETCH, remediation, strategies

Career Choice Towards Fisheries Science: A Perception of Grade 12 Students in the Municipality of San Agustin

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Making a career choice is a defining phase in every student's life. Students must consider several factors before arriving at a decision. Hence, this study was conducted to assess the career choice of Grade 12 students in the Municipality of San Agustin and their perception of fisheries science as a profession. This study used of 237 senior high school students (representing 40% of the total registered high school students) as respondents. Majority of the students have a passion (20%, n=48) and personal interest (40%, n=95) to become a police officer (32%, n=76) and teacher (15%, n=36). Fisheries science was a less attractive career among high school students in San Agustin. Although, students positively perceive (70%, n=166) that fisheries will enhance national development and good source of employment. However, 96% of Grade 12 students was not interested in fisheries science as their career. This may be due to the popularity of other well-paying jobs that fits the interest of many students in high schools. Wherein, most students (41%, n=97) perceived that the fisheries profession is only about fishing and culturing fish. Thus, it is imperative to inform younger generations that fisheries science offers more economic benefits and job opportunities that have the potential to empower young people.

Keywords: Fisheries Science, Career choice, Grade 12, San Agustin

Perceived Level of English-Speaking Confidence and Grammatical Skill: Basis for Simplified Speech Handbook

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This study assessed the first-year students' perceived level of English-speaking confidence and grammatical skills. The purpose of this study was to ascertain whether there is a significant difference in English-speaking confidence when grouped according to sex, course, and parent's educational attainment. Also, this study sought the relationship between respondents' English-speaking confidence and grammatical skills. This study was conducted during the second semester of SY 2022-2023 at Romblon State University-San Fernando Campus. The descriptive-correlational research design was used. To collect the data, the survey questionnaire was given to the respondents. The data showed that in terms of sex, the majority of the respondent are females. In terms of course, the majority of the respondents came from BSIT and in terms of parent's educational attainment, majority of the parents of the respondents are high school graduate. The data also revealed that the respondents' perceived levels of English-speaking confidence are low. The respondents' level of grammatical skills is at least satisfactory. Additionally, it was found that there are no significant differences in English-speaking confidence between males and females, by course, there is a modest difference in their level of English-speaking confidence. Futhermore, there is a moderate correlation between English-speaking confidence and grammatical skills. This signified no significant relationship between English-speaking confidence and grammatical skills.

Keywords: English speaking skills, grammatical skills, speaking confidence, speech handbook

Antas ng Kasanayan sa Paggamit ng mga Bahagi ng Pananalita sa Filipino ng mga Mag-aaral na Senyor Hayskul sa Mataas na Paaralan ng España

Jan Ramanel M. Riano, Jackielo M. Rugas, & Lonybie R. Rufino
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Ang pag-aaral ay isinagawa upang matukoy ang antas ng kasanayan sa paggamit ng mga bahagi ng pananalita sa Filipino ng mga mag-aaral na senyor hayskul sa Mataas na Paaralan ng España sa panuruang taon 2021-2022. Ginamit ang kuwantitatibong lapit at metodong palarawang korelasyon sa pananaliksik, random sampling sa pagkuha ng bilang ng mga tagatugon at mga instrumentong estadistikal tulad ng frequency, percentage, weighted mean, t-test, one-way analysis of variance (ANOVA) at Pearson's Product Moment Correlation sa paglalarawan at pagsusuri ng mga datos. Ito ay nilahukan ng 259 na mga tagatugon. Lumabas sa resulta na pinakamarami sa mga tagatugon ay babae, tinedyer at nasa eksaktong edad kaugnay ng padron nito. Ang antas ng kasanayan sa pagggamit ng mga bahagi ng pananalita ay nasa "hindi natamo ang ekspektasyon" na nangangahulugang napakababa ng kasanayan, mahirap ang paggamit nito nang wasto, at kailangan pa ang paglinang at paghahasa sa mga ito. Nalaman ding walang pagkakaiba ang antas ng kasanayan sa paggamit ng mga bahagi ng pananalita ng mga mag-aaral batay sa kasarian at edad, habang ang baiting ay salik sa pagkakaiba nito.

Susing-salita: antas ng pananalita, kasanayan, bahagi ng pananalita, pananalita sa Filipino

Antas ng Pananaw sa Paggamit ng Blended Learning at Akademikong Performans sa Ikadalawang Taon sa Kolehiyo, Departamento ng Edukasyong Pampagtuturo, Romblon State University-San Fernando Campus

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Ang pag-aaral na ito ay isinagawa upang malaman ang antas ng pananaw sa paggamit ng blended learning at akademikong performans ng estudyante sa ikalawang taon sa kolehiyo, Departamento ng Edukasyong Pampagtuturo, Romblon State University-San Fernando Campus. Palarawang korelasyon, kwantitatibong lapit, at talatanungang sarbey and ginamit. Ang mga tagatugon ay binubuo ng 71 na mga estudyante. Ang resulta ng pag-aaral ay nagpapakita na karamihan sa mga tagatugon ay babae na nag-aaral sa ikalawang taon sa kolehiyo. Karamihan ay hindi bababa sa 20 taong gulang. Lumabas sa resulta na karamihan sa mga tagatugon ay mataas ang pananaw sa paggamit ng modyular at online na pag-aaral. Sa pangkalahatang datos kaugnay sa paggamit ng blended learning, nalaman sa pag-aaral na ito na karamihan sa mga tagatugon ay mananaliksik. Ang antas ng akademikong performans sa paggamit ng modyular at online ay mahusay. Nalaman din na walang pagkakaiba ang akademikong performans ng estudyante batay sa kanilang personal na katangian na edad at kasarian. Wala ring makabuluhang kuagnayan sa akademikong performans ang antas ng pananaw sa paggamit ng blended learning sa paraan ng pag-aaral at pagkatuto ng mga estudyante. Kung kaya, nakasalalay pa rin sa pagsisikap, kakayahan, interes, pagkakaroon ng motibasyon, kasanayan at pagpapahalaga ng mga estudyante sa pag-aaral ang kanilang pagkatuto at antas ng akademikong performans. Ito ay sa kabila ng paggamit ng blended learning bilang makabagong pamamaraan ng pag-aaral tungo sa epektibo at produktibong pagkatuto ng mga estudyante.

Susing salita: antas, pananaw, blended learning, akademikong performans, estudyante

Social Sciences, Humanities and Education-Supervision, Administration, Leadership and Management (SHE-SALM)

Analysis of Municipal Solid Waste in Odiongan, Romblon, Philippines: Implications for Sustainable Waste Management

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A solid waste management plan (SWMP) is a framework for waste management operations such as waste reduction, reuse, recycling, and safe disposal. It aids in identifying the sources and types of wastes created in the municipality and guidelines for correctly managing and disposing of hazardous and toxic wastes. A waste analysis and characterization (WACS) study necessitate immediate regulatory and control measures to tackle the global waste problem; this is critical in projecting a practical and environmentally acceptable solution. The study focused on the WACS of the Municipality of Odiongan, with a total land area of 15,566.36 hectares. Using adopted methods from the DOST-Industrial Technology Development Institute (ITDI) analysis generates around 6939.45 kg of waste daily for the residential sector containing 62.68% biodegradable, 18.52% recyclable, 17.85% residual, and 0.95% special waste. The non-household sector produces 3,373.99 kg of daily garbage, including 67.46% biodegradable, 9.83% recyclable, 20.15% residual, and 2.56% special trash. The solid waste generated in total is 10, 312 kg/day, and Brgy. Dapawan has the most contribution for household and public market for non-household samples. Waste generation is expected to inflate to 4,481,503 kg/year in 2033, with a projected population of 56,678. The WACS highlights the need for a comprehensive SWMP to counter the rising population and waste generation. As a baseline of the waste management plan, the municipal to provincial level can develop a sustainable and scalable management technique for reducing waste production.

Keywords: solid waste, municipal waste, solid waste management, waste characterization, waste analysis

Realism in the South China Sea (SCS) Dispute: International Politics as a Struggle for Power

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The South China Sea (SCS) dispute is a multifaceted territorial sovereignty dispute that has been occurring as early as the 1970s. By utilizing the realism theory, the study argues that the disputed sea is characterized by heightened competition and power struggle among the political actors involved. The study also suggests that the actions done by these political actors are motivated by national self-interests. Qualitative data were collectively gathered from 50 secondary sources, comprising of scholarly articles, peer-reviewed journals, theses, relevant books, and news. These secondary data were subjected to a document analysis method. Results showed that the South China Sea (SCS) dispute speaks about the overlapping claims to jurisdictions over hundreds of small maritime features and maritime zones associated with these features. It involves not only the core claimants: the People's Republic of China (PRC), Taiwan, Vietnam, the Philippines, Malaysia, and Brunei; but captured the attention of external significant powers as well. Furthermore, the geographic significance of the SCS lanes for transportation and trade routes, the bountiful oil and gas reserves in addition to its large fishing stocks, the military strategic location of the disputed sea, and the battle for nationalistic ideologies play a significant role in bringing the SCS to the forefront of world affairs. Conclusively, the findings of this study recommend that the political actors involved in the disputed sea should continue engaging in constructive dialogue and diplomacy to prevent the dispute from reaching a broader scope.

Keywords: South China Sea, politics, dispute, review

Fusion Framework for The Approved Sanitary Landfill Of The Municipality of Odiongan

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This study's fundamental problem revolves around the fusion engagement of the critical government agencies, non-governmental formations, and public participation in the crafting and implementing of the approved Sanitary Landfill in the Municipality of Odiongan. Fusion Framework is seen as a cooperative effort between individual or two and more agencies that contribute resources, knowledge, and data in order to maximize their capacity for data collection, community concern identification, research and program implementation. The idea of fusion has become the key mechanism for facilitating the exchange of knowledge and concept regarding the program and policies. The attention was paid to the four objectives of this research: a) to determine the status of the implementation of sanitary landfill program of the Philippine government, the role of local government in its implementation; b) to investigate the mechanism of the local government in coordinating with the different governmental agencies and non-governmental formations to implement the landfill program; c) to investigate the mechanism of the DENR in coordinating with the different governmental agencies and non-governmental formations to implement the landfill program and ; d) to identify the bottlenecks confronted by the local government in assuring the development and stability of the implementation of the program; and also to have clear understanding on how the local government tried to resolve those challenges. The research findings obtained from the questionnaires and interviews were analyzed and interpreted. The survey results show an agreeable level of implementation in ensuring public health protection, encouragement of greater-private sector participation and institutionalization of public participation which revealed the mean result of 2.60, 2.78 and 2.73. Furthermore, in terms of coordination of the DENR and the coordination of Local Government with the different agencies and non-governmental formations achieved an agreeable result from the respondents, revealing the mean results of 2.72 and 2.62. Moreover, trials and problems encountered in the sanitary landfill program implementation achieved the lowest results, disagreeable level of agreement, among all which revealed a mean result of 2.41. Finally, with the arguments presented, an attempt was made to provide some recommendations on implementing the sanitary landfill program in the Municipality of Odiongan.

Keywords: sanitary landfill, fusion framework, survey, local government

Social Sciences, Humanities and Education-Supervision, Administration, Leadership and Management (SHE-SALM)

Environmental and Socio-Economic Impact Of Mining Operations In San Fernando, Sibuyan, Romblon

Julie Ann M. Casidsid, Ann Nicole R. Romero, Cyril F. Jr. Rodriguez, Kin Lee F. Magtuba, Dina P. Falogme

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While the mining industry is booming worldwide, local communities oppose mining operations. This study sought to examine the impact of mining in San Fernando, Sibuyan, Romblon. In this study, the impact was categorized into environmental and socio-economic. The researchers used the descriptive method in using quantitative approach in gathering the needed data. The survey technique was used to gather information to the respondents. The respondents of this study are three hundred ninety-three (393) individuals from the twelve (12) barangays of San Fernando, Sibuyan, Romblon using stratified random sampling. The data were tallied and analyzed using statistical tools such as frequency, percentage and weighted mean. The study's findings indicate that most of the respondents strongly agreed that mining negatively impacts the environment. When it comes to socio-economic impact, it indicates that the majority of the respondents disagreed that mining has a positive impact on socio-economic status in the municipality. This study recommends that future study should be undertaken for further environemental and socio-economic evaluation of the impact of the mines in the island of Sibuyan.

Keywords: mining, local community, environmental impact, socio-economic impact

Research, Development and Innovation
Romblon State University-Main Campus
Odiongan, Romblon