



1<sup>ST</sup> DLSU SENIOR HIGH SCHOOL

# RESEARCH CONGRESS

CONVERGENCE OF  
RESEARCH DIVERSITY

## Book of Abstracts

March 14 and 15, 2019



# **Book of Abstracts**

## **1<sup>ST</sup> DLSU SENIOR HIGH SCHOOL RESEARCH CONGRESS**

Convergence of Research Diversity



# TABLE OF CONTENTS

## Committee

## What is DLSU SHS Research Congress?

## Message

## Program Highlights

<b>Paper and Poster Presentations</b> .....	7
Food, Nutrition, and Health .....	8
Materials Engineering .....	23
Sustainability, Environment, and Energy .....	25
Computer and Software Technology, and Robotics .....	48
Learners and Learning Innovations .....	53
Women, Children, Family, and the Elderly .....	55
Living Culture and Contemporary Societies .....	58
Entrepreneurship, and Business and Management .....	64
Socio-Economic and Political Landscape .....	71
<b>Business Concepts</b> .....	74
<b>Creative Outputs</b> .....	96



---

**Ms. Shiela Rose Salvador**  
Chairwoman

**Mr. Leo Vicentino**  
Overall Event Chair

**Ms. Mary Vanessa Nartia**  
Research Congress Chair

**Ms. April Rose Gonzales**  
The Secretariat

**Mr. Gerald Latayan**  
Program Head

**Ms. Whenn Pena**  
Poster Presentation Head

**Ms. Myrlla Torres**  
Publicity Head

**Mr. Engelbert Talunton**  
Creative Output Exhibit Head

**Ms. Loisel Gervacio**  
Event's Head

**Mr. Reymund Gonowon  
& Marife Magsino**  
EBM and Bazaar Head

**Mr. Christian Lacza**  
Logistics Head

**Mr. Christian Gopez**  
Media Correspondent

**Mr. Gabriel Fournier**  
Sponsorship Head

---



# **1<sup>st</sup> DLSU SHS Research Congress**



The 1st De La Salle University Senior High School Congress aims to provide an opportunity for the convergence of ideas and talents of emerging researchers, artists, and entrepreneurs of today's generation. This event will showcase the ideas, researches, products, and performances that emanated from the capstone projects of Senior High School students. It is also aligned with De La Salle University's vision-mission as harbinger in the promotion of research in the country.

The congress is a convergence of research diversity from the different disciplines and field of knowledge explored in the Senior High School and a display of the students' pursuit to investigate the world around them. It is an event that will highlight the coming together of various students' outputs that address the challenges faced by our contemporary society.

### **The Capstone Project**

Sessions, exhibits, performances, and a bazaar at the 1st DLSU Senior High School Congress will showcase the capstone projects of Senior High students from various schools. Such events shall cover the following tracks and specific strands:

- ◆ Academic Track
  - ⇒ Accountancy, Business, and Management Strand (ABM)
  - ⇒ Humanities and Social Sciences Strand (HUMSS)
  - ⇒ Science, Technology, Engineering, and Mathematics Strand (STEM)
- ◆ Arts and Design Track
- ◆ Sports Track



**Br. Raymundo B. Suplido FSC**  
**De La Salle University President**

De La Salle University's pursuit of research is an essential part of our vision-mission as a leading academic and national resource. Our University has opened avenues and provided support for our faculty and students to conduct research and promote creative endeavors. We have continued to build state-of-the-art facilities and to acquire an extensive research database and library books and materials. We have also strongly encouraged collaborative endeavors not only among our faculty and students, but also with our external partners in industry and other academic institutions.

The first DLSU Senior High School Research Congress is a milestone in our continuing research journey. This signifies that our young students have already acquired that inquisitive spirit and desire to create new knowledge and eventually, contribute to finding solutions that will improve the quality of life, especially of the poor and marginalized in our country.

This SHS conference, focusing on the theme "Convergence in Diversity," is a wonderful opportunity to showcase the talents and outputs of students from the three SHS academic tracks (ABM, HUMSS, STEM), the Arts and Design, and Sports Track. This is also a call to promote unity and understanding amid differences as we pursue interdisciplinary studies.

Congratulations to the organizers and participants of this event, and may you remain



**Br. Bernard Oca FSC**  
**De La Salle University Chancellor**

Dear Senior High School Students, welcome to your 1<sup>st</sup> Research Congress!

Congratulations to the organizers. You have chosen a very appropriate theme. Convergence is a profound word. It denotes a movement toward unity of purpose, the generation of new knowledge through research. It signifies a meeting of the minds, the fusion of ideas and knowledge of students coming from different schools and academic tracks, endowed with different competencies, and inspired by diverse research interests. Meanwhile, diversity is what makes the research landscape fascinatingly interesting, especially among the young.

As you may be aware, we recently made our debut in the 2019 World University Rankings of Times Higher Education (THE), a leading provider of higher education data for research-intensive institutions globally. We joined the 801-1,000 bracket, landing in the top three percent of higher education institutions worldwide, and becoming the lone Philippine private university on the list. I mentioned this recent milestone in the history of DLSU not to intimidate you, but to challenge you to continue engaging in scholarly pursuits.

I wish you all the best as you engage in thought-inspiring sessions.

### **A. Paper Presentation**

The paper presentation will showcase research concepts, collaborations, innovations, and products of various strands and tracks through an interactive oral presentation.

### **B. Poster Presentation**

The poster presentation is an exhibition of research concepts, collaborations, innovations, and products of various strands and tracks through a display of research posters. This exhibit will particularly show the relevance and contribution of their research work in their chosen discipline.

### **C. Business Concepts Bazaar**

The Business Concepts Bazaar of the ABM Strand will provide an opportunity for student participants to demonstrate their entrepreneurial skills and showcase their innovative products. The business concepts are supported by a sound business plan that promotes product sustainability and social responsibility.

### **D. Creative Output**

The Creative Output presentation will showcase evocative masterpieces of the student participants through art exhibitions and performances that are products of a diligent research process. The creations reflect insightful messages through art expressions that will radiate positivity and empowerment to address societal concerns.

### **E. Teacher Training**

This teaching development program is a part wherein teachers get an opportunity to immerse into a pedagogical improvement discourse.



# **PAPER AND POSTER PRESENTATIONS**

## Comparative Study on the Antibacterial Activity of Crude Ethanolic Extracts from Common Philippine Capsicum Fruits

June Therese P. Segalle<sup>1,\*</sup>, Carmen Alicia E. Brooks<sup>1</sup>, and Andrea Kate Parel<sup>1</sup>  
<sup>1</sup>S.T.E.M. Strand, Senior High School Department,  
Colegio San Agustin-Biñan, Biñan City, Laguna  
\*Corresponding Author: segallejtp.csabinan@gmail.com

Currently, many pathogenic bacteria have become resistant to antibiotics and scientists are now looking for alternatives to control them. Known for their pungent flavor, chili peppers have been proved to possess bactericidal agents. However, only a small number of researches on the antibacterial activities of chili peppers exist in the Philippines which is home to the famous *Capsicum frutescens* L. or locally known as siling labuyo. Thus, this study was conducted to determine the antibacterial activity of crude ethanolic extracts of select common Philippine *Capsicum* cultivars namely *Capsicum frutescens* L. (siling labuyo), *Capsicum annum* var. *Longum* (siling pansigang) and *Capsicum chinense* Habanero (siling Habanero) on *Staphylococcus aureus* and *Escherichia coli* using the Kirby-Bauer disc diffusion test. All of the three extracts were found to be effective against *S. aureus* while only *C. frutescens* L. was effective against *E. coli*, with its inhibition zone ranging from 0 to 1.88 mm. Meanwhile against *S. aureus*, *C. frutescens* L. ranged from 8.2 to 11.2 mm, *C. chinense* Habanero ranged from 1.8 to 5.2 mm while *C. annum* var. *Longum* ranged from 2 to 4.8 mm. Significant differences ( $p < 0.05$ ) were found among the cultivars and concentrations. Among the three cultivars, *C. frutescens* L. extract had significant effects ( $p < 0.05$ ) on both *S. aureus* and *E. coli* thus displaying the highest antibacterial activity. This study exhibits the potential of common Philippine *Capsicum* cultivars as natural antibacterial products.

**Key Words:** Antibacterial; *Capsicum frutescens* L.; *Capsicum annum* var. *Longum*; *Capsicum chinense* Habanero; Kirby-Bauer disc diffusion test

## Project COiL: Studies on Cow Dung, Oregano, and Lemongrass as Mosquito Repellents

Francis Magueflor<sup>1</sup> and Sophia De Vera<sup>2</sup>

<sup>1</sup>STEM, DLSZ

<sup>2</sup>STEM, DLSZ

\*Francis Magueflor: s2017264@dlszobel.edu.ph

Mosquito-borne illnesses are a worldwide problem, being the 7<sup>th</sup>-leading cause of death in low-income economies. In a local context, an increase of dengue cases from 2000-2011 was shown in the Philippines. This paper aims to solve these problems through two approaches: essential and macerated oils of oregano and citronella, and cow dung-based mosquito coils. In the first portion of the study, citronella (CE) and oregano (OE) essential oils as well as their infused or macerated counterparts (CI and OI) were tested by means of an abiotic sugar-feeding assay, comparing untreated assays to oil-treated assay within 5 trials each per oil. By using the paired samples T-test and the One-Way ANOVA, it was found that CE and OI were efficacious with  $p < 0.05$  and negative t values, indicating repellency. In a follow-up experiment, OI was also shown to be efficacious after having initial inconclusive results using the Paired T-test. For the second part of the study, comparative experiments were conducted to test the repellency and mortality of a cow dung-based coil to a commercial coil using a two-box setup. Results show through a One-Way ANOVA that the commercial coil was better in terms of mortality but the cow dung-based coil was better in terms of repellency, further confirmed with the  $F > F$  critical. These results show that a combination of the three primary components may be a feasible and effective natural mosquito repellent.

**Key Words:** mosquito; oregano; citronella; cow dung; macerated oils

## A Comparative Study of Antioxidative Properties in *Caulerpa lentillifera* (Lato), *Coffea canephora* (Robusta Coffee Beans), and *Moringa oleifer* (Malunggay)

\*Corresponding Author: cristian.argamino@dlsu.edu.ph Bianca Felise Cruz <sup>1</sup>, Lucille Marie Samaco <sup>2</sup> and Michelle Avery Teng <sup>3</sup>

<sup>1</sup> De La Salle University- Manila, 2401 Taft Avenue Manila

<sup>2</sup> De La Salle University- Manila, 2401 Taft Avenue Manila

<sup>3</sup> De La Salle University- Manila, 2401 Taft Avenue Manila

With the growing interest in the use of supplements to maintain a healthy lifestyle, many are unaware of the detrimental effects of synthetic antioxidants. Fortunately, plant-based resources contain antioxidative properties. *Caulerpa lentillifera* (Lato), *Coffea canephora* (Robusta Coffee Beans), and *Moringa oleifer* (Malunggay), are locally abundant goods in the Philippines and are highly beneficial to people's health. However, some antioxidants might not be compatible with certain organs. The aim of this study is to identify the antioxidative properties of each sample to determine the order of free radical inhibiting power of the three samples. In this research, the antioxidant capacity measured by the free radical scavenging activity of each of the said samples above were determined by means of DPPH assay. The results showed that malunggay exhibited the highest percent inhibition free radical, indicating that it is the most effective source of antioxidant among the three samples. As malunggay is a commonly consumed food item, it appropriately serves as a more natural antioxidant-rich alternative to caffeinated coffee beverages and hazardous synthetic antioxidants.

**Key Words:** *Caulerpa lentillifera*; *Coffea canephora*; *Moringa oleifer*; DSFDF antioxidants; percentage inhibition; free radical scavenging activity



## Antimycotoxigenic activity of *Alstonia parvifolia* against Aflatoxins B1 and B2

Maxine Antonette De Castro<sup>1,\*</sup>, Genevieve Giron<sup>1</sup>, Vivienne Hsiao<sup>1</sup>,  
Cher Nikki Ramos<sup>1</sup>, Justine Beatriz Sablan<sup>1</sup>, Maria Carmen S. Tan<sup>2</sup>,  
Glenn G. Oyong<sup>3</sup>

<sup>1</sup>De La Salle University Integrated School, Taft Avenue, Manila

<sup>2</sup>Department of Chemistry, De La Salle University, Taft Avenue, Manila

<sup>3</sup>Center for Natural Sciences and Environmental Research, De La Salle University, Taft Avenue, Manila

\*Corresponding Author: maxine\_decastro@dlsu.edu.ph

**Abstract:** In this study, the non-polar dichloromethane extract from the roots of *Alstonia parvifolia* was evaluated for antimycotoxigenic activity against aflatoxins B1 (AFB1) and B2 (AFB2). A working concentration (200 µg/mL) of the crude extract was subjected to two-fold serial dilution into a 96-well plate containing fixed and bound concentrations (45 ppb) of AFB1 and AFB2, respectively. N-acetyl cysteine (NAC) was utilized as anti-aflatoxin control. Post-detection was later performed using an ELISA-based assay and results were assessed spectrophotometrically at 570 nm. Non-linear regression of calculated relative mycotoxigenic index against root extract (inhibitor) concentration revealed an indirectly proportional relationship, suggesting a decreasing aflatoxin concentration as the log inhibitor increases. These results suggest that *A. parvifolia* root exhibited a concentration-dependent deactivation of AFB1 and AFB2 with half-maximal protective indices of 5.51 and 4.5 µg/mL, respectively. Statistical analysis revealed that there is no significant difference between the AFB deactivating activities of the root extract and NAC (AFB1,  $P=0.1773$ ; AFB2,  $P=0.1125$ ) denoting a comparable level of antimycotoxigenic activity with the antidote NAC. Phytochemical analysis of the root extract revealed a moderate presence of sterols, triterpenes and saponins, with traces of flavonoids, alkaloids and glycosides. Presence of these plant compounds may have played roles in the deactivation of AFB1 and AFB2.

**Key Words:** *Alstonia parvifolia*, aflatoxin, antimycotoxigenic, half-maximal ASFD protective concentration

## **In silico Molecular Docking of Anthocyanins Against $\beta$ -lactamase from Methicillin-Resistant *Staphylococcus aureus***

Joshua Godwin Cuevas<sup>1</sup>, Bryant Kimm Gonzales<sup>1</sup>, Louiejabe Nuniala<sup>1</sup>,  
Rene Louis Singson<sup>1</sup>, Glenn G. Oyong<sup>2</sup>

<sup>1</sup>STEM Strand, De La Salle University Integrated School, Taft Avenue, Manila

<sup>2</sup>Center for Natural Sciences and Environmental Research, De La Salle University, Taft Avenue, Manila

\*Corresponding Author: joshua\_cuevas@dlsu.edu.ph

The unscrupulous use and negligent approach on antibiotic therapy resulted to antibiotic resistance in bacterial pathogens. Thus, alternative treatments through novel compounds with potential antimicrobial leads can help cure life-threatening infections and curb disease outbreaks. Numerous studies report the potential of anthocyanins, phytochemical compounds with broad-spectrum antibacterial activities. However, the antimicrobial mechanism remains to be elucidated. An *in silico* molecular docking approach was applied to investigate the capability of anthocyanins in blocking the  $\beta$ -lactamase (bla) of methicillin-resistant *Staphylococcus aureus* (MRSA). Gene sequences of MRSA bla (31) retrieved from GenBank revealed an MAFFT score of 1.0 suggesting no significant differences in the amino acid sequences. PredictProtein analysis afforded no significant diversity in the secondary structures. AIZ09236 was chosen as representative. Derivation of the 3-dimensional structure produced a GMQE score of 98%. Docking scores of respective anthocyanin molecules within the active site of AIZ09236 via FireDock afforded negative global energy values suggesting stability of binding. This study is the first report depicting the possible mechanism of anthocyanins against bla and thus, may provide baseline data for the design and synthesis of novel augmentative antimicrobial compounds against MRSA.

**Key Words:** anthocyanin;  $\beta$ -lactamase; MRSA; molecular docking; *in silico*

## Zebrafish ( *Danio rerio* ) as a Bioindicator of Nickel Contamination in Water

Kristine M. Abad <sup>1</sup>, Abigail T. Anicete <sup>1</sup>, Rogene L. Bueno <sup>1</sup> and  
Rosshlein P. Yangson <sup>1\*</sup>, and Marigold Uba <sup>2\*</sup>

<sup>1</sup>De La Salle University Senior High School--Science, Technology, Engineering, and  
Mathematics (STEM)

<sup>2</sup>De La Salle University College of Science--Biology Department

\*Corresponding Author: rosshlein\_yangson@dlsu.edu.ph

Known as a toxic element, nickel is known for its effects on certain animal tissues. To assess its harmful effects, zebrafish (*Danio rerio*), a prominent model for toxicity assessment, was utilized as a bioindicator of nickel contamination in water. This was done by observing effects on its reproduction. One specific objective of this study was to measure the number of zebrafish eggs fertilized, unfertilized, or dead, and their total. Another was to determine how different nickel concentrations affect zebrafish reproduction. Before the laboratory proper, 1-liter samples of tap water and freshwater underwent Atomic Absorption Spectroscopy (AAS) in the Intertek Testing Services to identify their nickel concentrations. Results showed that the samples have nickel concentrations of less than 0.01 mg Ni/L. Following the AAS, 120 zebrafish (84 females and 36 males) underwent one-week acclimatization in tap water. After which, 10 zebrafish (7 females and 3 males) were transferred to 12 set-ups, totalling to 120 zebrafish. There were two conditions (freshwater and tap water) in triplicates, and three conditions of tap water with varying concentrations of nickel--0.0001 mg Ni/L, 0.001 mg Ni/L, and 0.002 mg Ni/L, all three in duplicates. After 2 days of breeding, zebrafish eggs were collected. There were an average of 111 eggs in freshwater, 103 (93%) of those were fertilized. For the tap water, an average of 148 eggs were collected, 113 (76%) of which were fertilized. The most number of fertilized eggs were collected from the freshwater environment while the least were from the condition with 0.001 mg Ni/L. From the results, it can be concluded that freshwater is a more conducive environment for reproduction among zebrafish than tap water.

**Key Words:** zebrafish; nickel; toxicity; bioindicator; tap water; freshwater; FSFSDF Atomic Absorption Spectroscopy (AAS); acclimatization

## Predicting the Stability of Cancer Associated p53 Tetramerization Domain Mutants

Alyssa P. Arnoco<sup>1</sup>, André Rafael T. Santos<sup>2</sup>, Anton Gerald D.S. Santos<sup>3</sup> and Mikaela Gail D. Santos<sup>4</sup>

<sup>1</sup>De La Salle University

<sup>2</sup>De La Salle University

<sup>3</sup>De La Salle University

<sup>4</sup>De La Salle University

\*Alyssa P. Arnoco: alyssa\_arnoco@dlsu.edu.ph

\* André Rafael T. Santos: andre\_rafael\_santos@dlsu.edu.ph

\*Anton Gerald D.S. Santos: anton\_gerald\_santos@dlsu.edu.ph

\*Mikaela Gail D. Santos: mikaela\_gail\_santos@dlsu.edu.ph

P53 protein plays an important role in fighting cancer related sickness by regulating the cell cycle. Mutations that occurs in the tetramerization domain of the protein can greatly affect the function of the p53 protein. With the use of current statistical tools, this study aims to use boosted trees machine learning to identify the trends in mutation of the tetramerization domain. The sequence-order-coupling number of the 45 mutated protein sequence were first calculated using ProtrWeb. This resulted to 30 vectors of Grantham and Schneider factors. The obtained data was used for two different approach in machine learning, classification analysis and regression analysis. For each parameter of the algorithm, the values were tested by fives, sixes, tens, five odd numbers, five even numbers, and all thirty values. The results showed more accurate prediction from classification analysis with 17 out of 42 algorithms deemed successful. The regression analysis on the other hand yielded 8 successful algorithms out of 42. The most accurate prediction, with 93.75% accuracy, used the grantham sequence descriptor specifically Grantham 44-49 in classification analysis. This study concluded that classification analysis via Boosted Trees Machine learning yields more accurate prediction than regression analysis.

**Key Words:** p53 protein; tetramerization domain; machine learning; boosted trees; predictive models;

DFGD

## Developing a Farmer Friendly Tissue Culture Method for Coffee

Mara Castro, Nikki Elquero, and Ana Gonzales  
De La Salle University - Integrated School (Manila)  
mara\_castro@dlsu.edu.ph  
nikki\_elquero@dlsu.edu.ph  
ana\_carmel\_gonzales@dlsu.edu.ph  
Ma. Carmen Ablan-Lagman  
Adviser, Biology Department, De La Salle University

Plant biotechnology is now widely applied in agriculture. One of the most well-known methods is the plant tissue culture, more specifically micropropagation, in crops to produce them in large scale quantities. Coffee is one of the most traded goods in the world, however, the Philippines has been experiencing a decline in its production. Though micropropagation is commonly used to address this problem, it is still not widespread due to the high cost of the materials. Because of this, the researchers attempted to find cheaper alternatives for the materials used in this method specifically focusing on food-grade ingredients. They decided to test on four (4) samples for each media: three (3) bud explants and one (1) root explant of *Coffea arabica*. After the preparation of materials and making of the food-grade recipe, the explants were inoculated and observed in a span of fourteen (14) days. Fresh weight data was recorded before inoculation, subculture, and at the end of the observation period. The data collected on the coffee tissue culture in the MS medium and food-grade media were analyzed with the use of the paired T-Test and ANOVA test. The results from the tests showed that although no weight gain was observed to suggest the absorption of nutrients, the food-grade medium is a suitable substitute for the MS medium as the explants survived the entirety of the observation period. However, the treatment that had sustained the samples the longest (DIY A) also had the most cases of contamination which made it an unsuitable food-grade medium treatment for farmers.

**Key Words:** tissue culture; micropropagation; *Coffea arabica*

## Comparison of the Effectiveness of Fresh and Dried Tea Processed *Citrofortunella microcarpa* Peel Substrate for the Growth of *Lactobacillus acidophilus*

Malayka Chavez, Sophia Cote, Marie Deato \* , and Charlene Macababbad  
De La Salle University - Laguna Campus

\*Corresponding Author: marie\_deato@gmail.com

Calamodin, also known as calamansi, is an economically-important citrus hybrid, predominantly cultivated in the Philippines. Recently, research has found that the commonly considered waste, Calamansi peel, may actually be useful in terms of probiotic bacterial growth, due to the fact that calamansi peels have shown properties that are aligned with the survival of a specific probiotic bacteria called, *Lactobacillus acidophilus* [*L. acidophilus*]. The study aims to know which between fresh and dried tea processed calamansi peel extract will serve as a better substrate for the growth of *L. acidophilus*. Using the total plate count method, with a total observation time of 16 hrs, results show that the more favourable type of substrate would be the dried tea processed calamansi peel extract. Results also show that the pH level and the growth of the *L. Acidophilus* have an indirect relationship, agreeing to the notion that the more *L. Acidophilus* present, the more the environment be acidic, which clearly explains the lower pH level.

**Key Words:** *Lactobacillus acidophilus* ; *Citrofortunella microcarpa* ; probiotics; DAFD substrates; total plate count

## Antibacterial Potential of *Calocybe indica* (Milky Mushroom) Crude Extract against *Escherichia coli* (E.coli) and *Staphylococcus aureus* (S.aureus)

Christian Moneda<sup>1</sup>, Khadija Candelaria<sup>2</sup>, Elaine Cartago<sup>3</sup>, Cara Tigulo<sup>4</sup>, and  
Abigail Balan<sup>5</sup>

<sup>1</sup> De La Salle University Manila- Laguna Campus  
christian\_moneda@dlsu.edu.ph  
khadija\_candelaria@dlsu.edu.ph  
elaine\_cartago@dlsu.edu.ph  
cara\_tigulo@dlsu.edu.ph

Bacterial and viral infections are quite common but the more evident or what occurs more frequently are bacterial infections. Two of the top infection causing bacteria are the *Escherichia coli* and *Staphylococcus aureus*. These bacterial infections are mostly treated by antibiotics to stop or kill the bacteria causing the infections. Unfortunately, due to some cases of overuse and over-prescription, some bacteria developed a resistance to some of the known antibiotics in the world. This study aims to determine the antibacterial potential of *Calocybe indica* (Milky Mushroom) crude extract against *E.coli* and *S. aureus*. Five Hundred grams (500g) of powdered milky mushroom and 2 litres of 95% ethanol were used in the preparation of the crude extract. The oily and watery fractions were separated by using a separatory funnel. Paper disk assay was used to test the antimicrobial potential of the following treatments: Treatment A (Oil), Treatment B (Watery), Treatment C (50% oil and 50% watery) and positive control (amycacin for *E. coli* and *S. aureus*) against the test organisms. A zone of inhibition with a diameter of 0mm for treatment A has no zone of inhibition. Treatments with oil extracts showed some antibacterial activity against *S. aureus* due to the presence of oleic acid which is effective against gram-positive bacteria. Meanwhile, there was no antibacterial activity against *E. coli*. Instead of observing antibacterial activity, it was shown that the treatments with the watery extracts enhanced the growth of *E. coli*.

**Key Words:** Infection; Bacteria; Mushroom; Crude Extract; *Escherichia coli*; *ASDS Staphylococcus aureus*

## **Antipathogenic activity of Sugar Apple (*Annona squamosa*) aqueous leaf extract against *Pseudomonas aeruginosa*, *Staphylococcus aureus*, and *Staphylococcus epidermidis***

Czarina Margareth Rabe, Tiffany Nicole Mallare, Patricia Sophia Nuñez,  
Lourisse Danielle Sarmiento, Redgyn Crisostomo,  
Juan Miguel Rafael Hernaez, Angelica Rose Alvarez, Justin Victor Villanueva,  
Hannah Camille Dollente

Corresponding Author: audreyjoyce.marcelo@letran.edu.ph, czrnmrgrth.00@gmail.com

*Annona squamosa* is commonly known as custard apple or sugar apple, which contains considerable amount of phenolic - flavonoid compounds, and antioxidants and antibacterial compounds that can be used against enteric bacteria. This study examined the antipathogenic activity of aqueous extract from sugar apple leaf against *Pseudomonas aeruginosa*, *Staphylococcus aureus*, and *Staphylococcus epidermidis*. Studies classified the leaf extracts from *Annona squamosa* plant into three: the methanolic extract, chloroform extract, and the aqueous extract. In various researches, it was reported that the extracts from *Annona squamosa* leaves (Neethu, et al., 2016) have high antioxidant and antibacterial activity because of its phenolic content. The leaves of *Annona squamosa* contain the potential antifungal activity against certain fungi particularly, *A. alternata*, *C. albicans*, *F. solani*, *M. canis*, and *A. niger*. The *Annona squamosa* leaf underwent a phytochemical screening to identify its different active components. 90 grams of pulverized dried leaves of *Annona squamosa* was dissolved in 1350ml of distilled water, stirred constantly for 2 hours and soaked for 48 hours. After soaking, the solution was filtered, and pure extract was separated from the solvent through rotary evaporator for 3 hours. Based on the results, it was concluded that the *Annona squamosa* leaves aqueous extract have relatively less inhibition against pathogenic bacteria *Pseudomonas aeruginosa*, *Staphylococcus aureus* and *Staphylococcus epidermidis*. The process of extraction affected the degradation of the secondary metabolites present in the extract that resulted to lower susceptibility rate of the bacteria against the extract.

**Key Words:** *Annona squamosa*; *Pseudomonas aeruginosa*; *Staphylococcus aureus*; *Staphylococcus epidermidis*; Antipathogenic activity



## Antimicrobial Activity of Himbabao (*Alleanthus luzonicus*) Leaves Methanolic Extract against *Staphylococcus aureus*

Nicole Ann L. Belonio, Abby Kei M. Concepcion,  
Johnkarl Eduard B. Manimbo, Kobe C. Mendoza, and Jericho A. Tuason  
Students, De La Salle Araneta University, Philippines  
nicole.belonio@dlsau.edu.ph  
abby.concepcion@dlsau.edu.ph  
johnkarl.manimbo@dlsau.edu.ph  
kobe.mendoza@dlsau.edu.ph  
jericho.tuason@dlsau.edu.ph

Plants have always been a valuable source of natural products for maintaining human health. The use of plant extracts and phytochemicals, both with known antimicrobial properties, can be of great significance in therapeutic treatments. The screenings of plant extracts for antimicrobial activity have shown that the plants epitomize a potential source of a new antimicrobial means. This study aimed to evaluate the antimicrobial activity of Himbabao (*Alleanthus luzonicus*) leaves extract against *S. aureus*. The leaves were soaked in 80% methanol for 48 hours and was filtered. The filtrate was evaporated using Rotary Evaporator under reduced pressure in order to obtain crude extract. The bacteria, *S. Aureus*, was subcultured onto Mannitol Salt agar for 24 hours. The antimicrobial activity of the methanolic extract was evaluated using agar disc diffusion method. Each plate contained control and treatment groups. Filter paper discs loaded with Gentamicin were used as the positive control, while 5% DMSO was used as the negative control. High and low concentrations of the methanolic plant extract were used as treatment. After the incubation period at 37 degrees Celsius for 24 hours, the antimicrobial activity was assessed by measuring the diameter of the zone of inhibitions (ZOI) of the disc using a ruler in millimeters. The data gathered was analyzed using the means of the zones of inhibition in the three replicates ( $n = 3$ )  $\pm$  standard error. Results have revealed that Himbabao (*Alleanthus luzonicus*) leaves methanolic extract in high and low concentrations were proven to have minimal antimicrobial activity against *S. Aureus*, but is less effective than the antibiotic Gentamicin.

**Key words:** *Alleanthus luzonicus*; *Staphylococcus aureus*; agar disc diffusion; A DFDS antimicrobial

## Antimicrobial Activity of Mandarin Orange (*Citrus reticulata*) and Saba (*Musa paradisiaca*) peels extract against *Staphylococcus epidermidis*

Buan, Hazelle Vei R., Gampong, Hannah Isabel F., Laid, Clarise Anne S., Mosot, Sean Mae M., Padua, Keanna Isabelle B.  
De La Salle Araneta University, Victoneta Ave., Potrero, Malabon City, Philippines

Antimicrobial resistance has been a threat to global health, food security and development. There has been a lot of cases wherein microorganisms have been resistant to certain antibiotics due to misuse and evolution. With this, microorganisms have been studied whether or not they exhibit sensitivity against plant extracts. Bacteria are single celled microorganisms which can thrive in any environment and tends to be pathogenic, which may cause diseases to those who have been infected. *Staphylococcus epidermidis* is a gram positive bacteria which is a normal human flora which are cause of nosocomial infections. There are studies that focused on the antimicrobial activity of *M. paradisiaca* and *C. reticulata* against *S. epidermidis*, it may be the plant's peels, extract, leaves and many more. The synergistic effect of various extracts when combined has yet to be explored and used to its full potential due to hardly any researches. With this, there has been an aim to expand knowledge regarding combination of naturally made extract in inhibitin microorganism whether it may have a synergistic, additive or antagonistic effect. Aqueous peel extract of the aforementioned fruits was obtained separately through maceration and thorough filtration and then coalesced into modified ratios. There were three treatment that differs on the amount of *M. paradisiaca* and *C. reticulata* aqueous extracts and tested on *S. epidermidis*. By conducting an antimicrobial assay having Vancomycin as a positive control, a widely known antibiotic to still exhibit a sensitive reaction to the bacteria. It was then found that there are only certain ratios of the aforementioned extracts that manifested a synergistic effect in inhibiting the growth of the bacteria therefore making the combination of these peel extracts a potential alternative to Vancomycin.

**Keywords:** antimicrobial activity; *Citrus reticulata*; disc diffusion; *Musa paradisiaca*; *SDF Staphylococcus epidermidis*

## The efficiency of Asian green mussel (*Perna viridis*) based disinfectant on *Staphylococcus aureus* & *Escherichia coli*

Aquino, A., Daz, J., Finez, K., Lee, W., Medina, R., Ocampo, A., Santiago, A., Sol Cruz, Z., Yabut, L., & Molina, M.  
Colegio de San Juan de Letran  
*monique\_molina@dlsu.edu.ph*

This study investigates the efficiency of the antibacterial properties and adhesive proteins present within the hemocytes of the Asian green mussel (*Perna viridis*). Past studies that focused on the mussel show that the *P. viridis* is capable of removing microorganism from its environment because of its natural biofilter system. Though in contrast, the extracts used from the crustaceans are mixed with water. The assortment of concoctions is tested against 2 different types of pathogenic bacteria viz., *Staphylococcus aureus* & *Escherichia coli*. In this this study, the findings suggest that the *P. viridis* isn't a staple disinfectant for the *S. Aureus* & *E. Coli*. The mixture used in the experiment showed no antibacterial activity against the bacteria in the experiment.

**Key Words:** *Perna viridis*, *Staphylococcus aureus*, *Escherichia coli*, Disinfectant

## Into the Lens: Mental Health in the Eyes of the Residents of Barangay Guinhawa, City of Malolos, Bulacan

Warren Domingo, Jameson Lazo, Jr., Franchesca Mikhaela Malacca, Shaneil Marquez, Yvonne Vincent Wayne Rodriguez, Joseline Santos, Ronilo Antonio, and Emeline Mercado

Bulacan State University - STEM

\*Corresponding Author: shaneil\_marquez@yahoo.com

In this century, mental health still lacks attention. The global burden of mental health issues are enormous, under-appreciated, and largely not fulfilled. As a result of this, a crisis aroused—lack of awareness in these issues. Hence, research is now taking step on battling the misconceptions, discriminations, and stigma. The aim of this study is to assess and identify the relationship between the demographic profile and the level of awareness in mental health issues of the residents in Barangay Guinhawa, Malolos, Bulacan. Residents' demographic profile are divided into four distinct classifications: age, gender, civil status, and employment status. Since the population is too large, the researchers used two-stage cluster sampling in order to acquire a smaller scale of residents and quota sampling in obtaining the sample size. The sample of the study is 150 residents whose age ranges from 15 to 30. Survey method was used in gathering data from the barangay. Data were collected using a questionnaire consisting of two sections: demographic profile and statements about mental health issues. The obtained total mean is 2.86 which is interpreted as the residents are moderately aware about mental health issues. Using Chi-square test as the statistical treatment, the researchers were able to reveal the connection of the two variables. The results revealed that there is a significant relationship between the residents' demographic profile and their level of awareness. In conclusion, the findings indicated that the level of awareness of the residents is dependent to their demographic profile.

**Key Words:** Mental Health; Awareness; Demographic Profile; Correlational; FGgvb Quantitative

## Development of a 3D-Printed Oscillating Disc as a Hand-Powered Centrifuge for Coagulation

Pauline Jane T. Aviquivil, Celestina Dianne Nicole A. Larona and  
Gabrielle T. Ramiso \*

Philippine Science High School - Main Campus, Agham Road, Diliman,  
Quezon City 1101

\*Corresponding Author: paulineaviquivil@gmail.com

Point-of-care (POC) devices are medical tools that could be used on-site to increase the access of underdeveloped communities to healthcare. 'Paperfuge' is a makeshift POC centrifuge with a rotating disc and an elastic string that is rhythmically pulled by hand to maintain rotation. It could fractionate 20 blood microliters within 1.5 minutes at 125,000 rotations per minute (rpm). However, most blood tests require a greater volume for accurate results. This study aims to successfully fractionate a colloid in a vacutainer and to observe differences in the speed of rotation in introducing more massive, durable and biodegradable plastic discs. With modifications on the material, disc thickness, and capacity, four prototypes were designed on Autodesk Fusion360 and 3D-printed using polylactic acid (PLA) and acrylonitrile butadiene styrene (ABS). A colloid composed of milk and vinegar was used to simulate blood for functional testing. The rotational kinematics of two prototypes were video-recorded and measured using Tracker. Initial results revealed that the PLA and ABS centrifuge had attained a maximum speed of 3670 rpm and 30.7 rpm respectively. The slower rotational speed is attributed to ABS having a significantly denser material than PLA. Further modifications may focus on spatial optimization of vacutainers and improved accuracy of the testing setup through the use of cameras with frame rates of 6,000 frames per second (as used for the Paperfuge) and confinement of the pulling motion to only one geometric plane.

**Key Words:** fractionation; 3D-printed design; rotational kinematics; colloidal separation; hand-powered centrifuge

## Forging Eco-friendly Concrete Incorporating Bio and Industrial Waste as Concrete Aggregates

Aaron Aquino<sup>1</sup>, Andre Relao<sup>2</sup> and Milje Moran<sup>3</sup>

<sup>1</sup>Southville International School and Colleges

\*Aaron Aquino: 17-0022@sgen.edu.ph

\*Andre Relao: 17-0191@sgen.edu.ph

\*Milje Moran: 04-0021@sgen.edu.ph

Concrete is the most widely used construction material to build infrastructures. As industrialization and urbanization are constantly increasing, day by day. Industrial made concretes nowadays require huge amounts of natural resources particularly sand. The environment is on the verge of sand shortage, and that many environmental issues regarding the excavation of industrial sand. The process of quarrying is not only harmful for our environment but, also damages the quality and quantity of our natural resources (Connel, 2018). Mussel shells and glass (annealed glass) were investigated and studied by the researchers as the potential substitute of sand as fine aggregate for concrete. The collected glass and mussel shells were crushed to serve as a substitute fine aggregate. The creation of concretes were made by following a ratio of 1:2.2:2.7 (cement: fine aggregate: coarse aggregate). A 6 x 12-inch cylinder was utilized to mold the fresh concrete. Curing and drying of concrete was observed by the researchers for twenty-eight to enhance investigated performances such as compressive strength and density. Among the three aggregates used such as mussel shell, glass, and sand (control) there was no seen significant difference in density but a significant difference was seen in compressive strength at 0.05 degree of significance. Between mussel shell and sand-based concretes at 0.05 degree of significance there is no significant difference seen in density but a significant difference is seen in compressive strength. Concluding that the mussel shell has the best potential to replace sand. Research enthusiasts may experiment with different type of investigatory aggregates. The experiment should be done with a longer curation process, and waste plastics may be used as a fine aggregate in concrete.

**Keywords:** Concrete; Glass; Mussel shells; Density; Compressive Strength

## Design and Development of a Mid-air Wind Turbine Scale Model with Corrugated Fins

Albert Jhames M. Maulion <sup>1\*</sup>, Matin Daniel A. Que <sup>1</sup>,  
and Vincent Angelo L. Suarez <sup>1</sup>

<sup>1</sup>Student of Philippine Science High School - Main Campus

\*Corresponding Author: [jmaulion.maker@gmail.com](mailto:jmaulion.maker@gmail.com)

The use of wind power can decrease CO<sub>2</sub> emissions versus conventional power generation, which could help solve climate change. With the increasing demand of renewable sources of energy and the increasing need for electricity in remote areas of the Philippines, mid-air wind turbines can be depended on due to their higher power output and deployment versatility compared to grounded wind turbines. The project aimed to create a scaled down mid-air wind turbine with corrugated fins, inspired from dragonfly wings, that generates more power. One design was developed and tested. It was based on the researchers' spherical design from the previous year and the MARS wind turbine. The main body of the design was 3D printed along with its fins with a set of electrical wires attached to the rotary generators of the model. The physical wind turbine model was tested in a wind tunnel while the digital 3D model was tested using Computational Fluid Dynamics from Autodesk. Results from a wind tunnel simulation show that the corrugated design produced 5.056 mW, while the spherical design from the previous year produced 3.867 Mw and the MARS design produced approximately 1.706 mW. The researchers used Kruskal-Wallis for statistical analysis. The p value was less than  $\alpha=0.01$ , this means there is a significant difference between the results. As the demand of renewable energy sources increases, the inclusion of corrugated fins could help improve the performance of the mid-air wind turbines. Mid-air wind turbines could be a solution to the climate change crisis.

**Keywords:** Eco-friendly; Magnus effect

## The Effectiveness of Used Cooking Oil and Coconut Husk Fiber in Concrete

Cesar Dan Rafael Alina<sup>1</sup>, Louis Angelo Cabingan<sup>1,\*</sup>, Angel Joaquin Navarro<sup>1</sup> and Jerome Tillada<sup>1</sup>

<sup>1</sup>STEM Student, Señor High School Department, De La Salle University- Laguna Campus

\*Corresponding Author: louis\_cabingan@dlsu.edu.ph

In this study, coconut husk fibers and used cooking oil are used to determine the effectiveness as additives in concrete. The individual and combined effects were evaluated through Slump Test, Compressive Strength Test, and Split Tensile Strength Test. According to the findings of the slump cone test, the combined additives concrete have a displacement of 27 mm which is greater workability than fiber alone, 21.5mm, but lesser than the controlled, 31.5mm. Concrete with used cooking oil have greatest workability with displacement of 32mm. As for the Compressive Strength Test and Split Tensile Strength Test, the coconut husk fiber showed a significant decrease in both tests, having a result of 21,474 N that the concrete can carry and 51,2060 N required to fracture the concrete, respectively, which is below the results of the controlled sample of Portland Cement Mix, which resulted in 65,327 N for Compressive Strength and 55,4075 N for Split Tensile Strength. However, it was observed during testing that the coconut husk fiber proved to be a sustainable reinforcement to the concrete because the concrete could not fully break apart due to the coconut husk fiber creating greater compaction in the concrete. The used cooking oil proved to have the greatest force required to fracture the concrete, however, it broke apart with ease, once a fracture occurred. As for the mixed substance of additives in the concrete, it proved to have greater force required to fracture the concrete having a Compressive Strength of 121,176 N and Split Tensile Strength of 86,2708 N, and once a fracture occurred, the concrete could not be broken apart completely, having the coconut husk fiber as a means for reinforcing the concrete.

**Key Words:** concrete; used cooking oil; coconut husk fiber; reinforcing; effectiveness



## Resiliency on Bamboo Stilts: Modification on Structural Elements of Stilt Houses to Combat Storm Surge

Kim Elijah Aguilan <sup>1</sup>, Marianne Del Agua <sup>2</sup> and Jacob Adrienne Sy <sup>3\*</sup>  
<sup>1,2</sup>De La Salle University Integrated School Manila  
\*jacob\_adrienne\_sy@dlsu.edu.ph

The Philippines' geographic location, being surrounded by bodies of water, has made it vulnerable for the country to be impacted by the unstable movements of the oceans brought about by tropical typhoons. Common disastrous events brought by low pressure weather systems are storm surges. The damage dealt by coastal flooding can be severe, ranging from structural casualties to claiming human lives by the multitudes. As an adaptation, ethnic groups, particularly those living in coastal areas, utilize natural materials from the environment in order to build stilt houses to combat storm surges. However, the result of their houses is not of scientific basis but only through time and experience. As such, the research aims to study a specific set of dimensions of bamboo stilt houses in order to find the most effective dimensions in combating storm surges among the group. The researchers, first, constructed a wave simulator which then subject the stilt houses to waves. Each stilt house was tested three times for a total of 27 trials, lasting a minute each. The difference of the displaced distance of the bamboo poles are then compared through one-way ANOVA testing in Microsoft Excel 2016. The analysis of data showed that the diameter and height of the bamboo poles have no significant effect to the displacement of the stilt house. In addition, qualitative analysis through observation displays that the stability of the stilt house has no relationship with the its displacement.

**Key Words:** stilts; bamboo; Philippines

## Electrochemical Determination of Tannic Acid using Graphite Electrodes sourced from Waste AA Batteries

Earl F. Cansino<sup>1,2</sup>, Isis O. Dy<sup>1,2\*</sup>, Cassandra A. Razal<sup>1,2</sup>, Kimberly N. Reyes<sup>1,2</sup>  
Lotis D. Racines<sup>2,3</sup>, Shirley T. Palisoc<sup>2,4</sup>, Michelle T. Natividad<sup>2,4</sup>

<sup>1</sup>Senior High School Department, De La Salle University-Manila, 922

<sup>2</sup>Condensed Matter Physics Laboratory, De La Salle University-Manila, 922

<sup>3</sup>Physics Department, Central Mindanao University, Maramag, Bukidnon 8714

<sup>3</sup> Condensed Matter Research Unit, CENSER, De La Salle University, 2401 Taft Avenue,  
Manila, Philippines, 922

\*Corresponding Author: isis\_dy@dlsu.edu.ph

Graphite electrodes extracted from different brands of waste AA batteries were used in the electrochemical detection of tannic acid (TA), a polyphenol often present in local beverages, through differential pulse anodic stripping voltammetry (DPASV). The bare electrodes were pretreated using cyclic voltammetry and the surface morphology of the electrodes was studied using scanning electron microscopy coupled with energy dispersive X-ray spectroscopy. Panasonic brand resulted with the highest anodic current peaks, hence, it was considered as the best brand. A linear TA concentration range from 100 parts per billion (ppb) to 800 ppb ( $R_2 = 0.9916$ ) was obtained at optimized DPASV parameters. Real sample analysis was done on commercially available wines and teas.

**Key Words:** Tannic acid; differential pulse anodic stripping voltammetry; dfgg graphite electrode

## Generation of Electrical Energy from Atmospheric Ions

Joshua Bathan<sup>1</sup>, Nico Benito<sup>1</sup>, Carlo Charles<sup>1,2,3,\*</sup>, and Tim Henson<sup>1</sup>

<sup>1</sup>De La Salle University

<sup>2</sup>MTE Technology Inc.

<sup>3</sup>Makerspace Manila

\*Corresponding Author: charles.carlo9@gmail.com

Studies show that there are around 1.3 billion people who suffering without any access to electricity. People from rural areas are mostly affected because of the reason that there is no electrical grid accessible in their location. Electricity is becoming more of a necessity as the world continues to develop technologically. Almost everything nowadays is heavily reliant on electricity. Eighty percent of global energy for producing electricity comes from burning fossil fuels. However, fossil fuels such as coal and oil are limited, finite, and are currently not enough to foster the demands for energy. Renewable energy sources help resolve the problem of Energy scarcity. However, renewable energy sources are all currently dependent on certain factors; solar panels are dependent on a source of light, wind turbines require wind, hydroelectricity needs water, all these sources require certain factors to produce electricity and keeping in mind that current renewable energy sources are all expensive. This research aims to find a way to produce electricity anywhere and at anytime and will also act as an alternative to present renewable energy sources. Utilizing the concept of atmospheric ions; where positive ions are found in the atmosphere and negative ions are found in the ground, a circuit design will be used to integrate the two ions to produce a flow of electricity. Results show that generation of electrical energy is possible through atmospheric ions. The conducted tests yielded results that show that the circuit was able to produce 1.2V per module. Overall, this research opens up a new possibility and resolution to the crisis of energy scarcity. This research achieved its overall objective of producing electrical energy from atmospheric ions while also being cost efficient in regards to the materials used to make the circuit.

**Key Words:** Atmospheric Ions; Energy Scarcity, Renewable Energy Sources, Circuit, Electrical Energy

## Fabrication and Characterization of Semiconductor Nanomaterials under Magnetic Field

Aeron Gabriel E. Canlas<sup>1</sup> and Beatrice Anne C. Maquilan<sup>2</sup>

<sup>1</sup>De La Salle University Taft

<sup>2</sup>De La Salle University Taft

\*Corresponding Author: [beatrice\\_maquilan@dlsu.edu.ph](mailto:beatrice_maquilan@dlsu.edu.ph)

This study compares silicon nanomaterials fabricated in a horizontal tube furnace with and without an applied magnetic field. The observation was done by checking whether or not there is an apparent direction by which the silicon nanomaterials follow as they were produced during the baking process. The researchers were able to observe an alignment of silicon nanowires in one of the samples baked under a magnetic field. In addition, the presence of the nanowires were observed to be placed right before the region where the magnetic field had been placed.

**Key Words:** silicon; nanomaterials; horizontal vapor phase furnace; magnetic field

## A Comparison Study Between Dual Panel Stationary Photovoltaic Power Systems and Single Panel Single-Axis Solar Tracking Photovoltaic Power Systems in Maximum Power Point Tracking

Neal Ong<sup>1</sup>, Simon Que<sup>2</sup>, Franz Rustia<sup>3</sup>, Brian Tan<sup>4</sup>, and Clement Ong<sup>5</sup>  
<sup>1, 2, 3, 4, 5</sup> De La Salle University Manila

\*Corresponding Author: [simon\\_que@dlsu.edu.ph](mailto:simon_que@dlsu.edu.ph)

One major factor in designing a photovoltaic (PV) solar power system is how the PV panels in a PV power system are oriented with respect to the direction of incidence of the light from the sun. The main objective of this study is to determine whether it is more effective and cost efficient to design a PV power system with two stationary identical panels, or with one identical panel in single axis solar tracking instead. Two small scale, prototype PV power systems with identical PV panels were fabricated in order to conduct testing and comparisons. One system is a dual panel stationary PV power system, and the other system is a single panel single-axis solar tracking PV power system. The power generated by each setup was found with maximum power point tracking (MPPT) and logged. The comparison showed that it is a better decision to utilize dual-stationary systems than solar tracking to generate power because it costs less.

**Key Words:** photovoltaic solar, solar tracking, stationary, maximum power point tracking, comparison

## The Level of Perception of the Senior High School Students of De La Salle Lipa on Environmental Consciousness and Paperless Advocacy

Louise Beron<sup>1</sup>, Kiel Dizon<sup>2</sup>, Arishelle Escudero, Paolo Estrella, Raphael Lubrico, Gabriel Marquez, and Mark Perez \*

<sup>1</sup>Affiliation

<sup>2</sup>Affiliation

\*Corresponding Author: [louise\\_jastin\\_beron@dls.edu.ph](mailto:louise_jastin_beron@dls.edu.ph)

The purpose of this study is to investigate the different levels of perception of the Senior High School students of De La Salle Lipa currently enrolled in academic year 2018-2019 on adopting paperless customs. This addresses the status of the environmental consciousness of the students which may exploit the results for the research problem to be investigated. Through a modified survey questionnaire, the proponents of this correlational study gather sufficient data which are subjected to statistical treatment. The study revealed that the students are environmentally conscious; however, academic files are preferred in print over digital copies despite the awareness on the impacts of mass paper production, suggesting that there is no significant relationship between the students' environmental consciousness with their supposition on paperless customs.

**Key Words:** Electronic Document; Environmental Consciousness; Paperless Practices; asd and Senior High School Students

## Phytoplankton as Bioindicator of Organic Pollution Load Utilized as a Method for Environmental Monitoring

Anne Gabrielle M. Abad<sup>1\*</sup>, Nagyeong Heo<sup>1\*</sup>, Ann Samuelle T. Nolasco<sup>1\*</sup>, and Raphael B. Roncal<sup>1\*</sup>

<sup>1</sup>De La Salle University, STEM 12G

\*Anne Gabrielle M. Abad: anne\_abad@dlsu.edu.ph

\*Nagyeong Heo: nagyeong\_heo@dlsu.edu.ph

\*Ann Samuelle T. Nolasco: ann\_samuelle\_nolasco@dlsu.edu.ph

\*Raphael B. Roncal: raphael\_roncal@dlsu.edu.ph

Bioindicators have been an inexpensive but efficient alternative method in monitoring various water bodies as they provide valuable information on the level of organic pollution load present in the water. In this study, phytoplankton were utilized as a bioindicator in monitoring organic pollution load in Pasig, Malihaw, and Tago rivers. Water samples were obtained through one-time collection in one-liter bottles and were preserved with 30 ml of formalin. Species of phytoplankton present in the water samples were identified with photomicroscope for further analysis. The Palmer's Pollution Index (PPI) was used to determine the level of organic pollution in each sample while the Shannon-Wiener Diversity Index was utilized to measure the species diversity for comparison among the three river. Results showed that there were a total of 25 phytoplankton species identified, 12 of which are indicators of organic pollution namely Chlorella, Cyclotella, Gomphonema, Leponcinclis, Melosira, Micratinium, Navicula, Nitzschia, Oscillatoria, Phormidium, Scenedesmus, and Synedra; they were most concentrated in the Tago Lower Dam, followed by Pasig River, Malihaw River, and Tago Dam. All rivers had a low or absence of organic pollution due to low scores of PPI ranging 0-5. Diversity index H of Pasig River, Malihaw River, Tago Dam, and Tago Lower Dam measured 0.65, 1.64, 2.13, and 1.94 respectively. Shannon-Wiener Diversity Index indicated a poor diversity and heavy organic pollution in Pasig (diversity index H of 0.65) and Malihaw rivers (diversity index H of 1.01 and 1.25), while Tago Dam and Tago Lower Dam both are moderately polluted with diversity index H of 2.13 and 1.94 respectively.

**Key Words:** organic pollution; bioindicator; phytoplankton; Palmer's Pollution Index; Shannon-Wiener Diversity Index

## Waste Management in an Educational Perspective

Alonzo Rimando<sup>2</sup>, Vincent Marron<sup>2</sup>, Goldame Yapit<sup>1</sup>, Jio Tavares<sup>2</sup>,  
Shanaia Argueza<sup>2</sup>, Christian Aban<sup>2</sup>

Lorma Basic Education Schools

\*Corresponding Author: goldame18@gmail.com

Many economically developing countries produced more waste for as a country develops, the level of consumption also increases which causes the diminution of proper waste control because of the continuous production of wastes. Waste management liabilities stated that waste management practices, knowledge and awareness differs by sex, class, and age of the students. In general, the cooperation of communities and government is really important to minimize the effects of poor waste management of our community which encouraged the government implementing rules which creates creating necessary institutional mechanisms and incentives, declaring certain acts prohibited and providing penalties and appropriating funds. Our main research problem is; What are the challenges in the implementation of proper waste management. This research is a phenomenological research. Our participants are the artists of the Ililikha Artist village. Baguio experienced waste management problems because some people did not cooperate with the laws because of use of technology and their level of participation. People can contribute in creating a sustainable environment by creating advocacies that can help minimize waste or by understanding the concept of upcycling. The artists of the said village recycled waste to create something more beautiful that could lessen wastes. Our research could serve as a basis for the future researches so that they would not have much trouble in understanding waste management. It could also give the future researchers a head start on what to do and serve as a convenient guide. It could give them a clearer comprehension of Waste Management.

**Key Words:** waste; education; liability; upcycling; utilization



## ONE: Organic Nutrient Enhancers

Burog, Alexandra Maria <sup>1</sup>, and Clay, Aedin Hunter <sup>2</sup>

<sup>1</sup>STEM, DLSZ-Vermosa

<sup>2</sup>STEM, DLSZ-Vermosa

\*Alexandra Maria Burog: s2017232@dlszobel.edu.ph

Aedin Hunter Clay: s2012074@dlszobel.edu.ph

ONE: Organic Nutrient Enhancers aims to create an effective organic fertilizer out of two substances easily found in Calatagan, namely press mud – a by-product of sugar production - and *Caulerpa lentillifera* seaweed extract. Through this it aims to give Calatagan an alternative to chemical fertilizers and help. Three experiments were conducted to validate this. The first compared the effect that three different sugarcane by-products – press mud, cane tops, and molasses -had on the growth of green bean plants, with fifteen plants receiving each. Molasses had a relatively negative effect on plant growth compared to press mud and cane tops, which had a similar effect on it. The second experiment measured the NPK nutrient content and pH of soil before and after it was sprayed with different amounts of *Caulerpa lentillifera* extract. This experiment showed that 2.5ml of extract produced the best pH and NPK levels in the soil, although the resulting soil was low in potassium (K). The final experiment tested the NPK and pH level of 60g of press mud with varying amounts of seaweed extract. It showed that 2.5ml of extract and 60g of press mud had significant amounts of all three NPK nutrients, and therefore that press mud supplied the potassium that the seaweed extract lacked. The experiments show that a combination of press mud and *Caulerpa lentillifera* makes an effective fertilizer that benefits farmers through its locally-sourced, organic, and sustainable nature. This project can serve as a model for communities seeking to move to more sustainable organic fertilizers in the place of chemicals.

**Key Words:** Organic Fertilizer; Sustainability; *Caulerpa Lentillifera* ; Press Mud

## Scales vs. Shells: A Battle for Chitin Supremacy

Aloysius Gerard Lubi<sup>1</sup>, Joel Nathaniel Maling<sup>1</sup> and Quinn Yale Shi<sup>1</sup>

<sup>1</sup>De La Salle University Senior High STEM Track, 2401 Taft Ave, Malate, Manila, 1004 Metro Manila

aloysius\_lubi@dlsu.edu.ph

Chona Camille V. Abeledo<sup>2</sup>

<sup>2</sup>Adviser, Biology Department

De La Salle University Senior High, 2401 Taft Ave, Malate, Manila, 1004 Metro Manila

Many aquatic animals are known for their chitin-rich exoskeleton; however, there is much to be discovered on the amount of recoverable chitin present in bio-waste products of native aquatic species in the Philippines such as those of the scales of the fishes *Oreochromis niloticus* or the tilapia, *C. hanos hanos* or the milkfish, and the carapace of the king mud crab *Scylla serrata*. Though extraction of chitin from the shells of crustaceans have been tested before, the scales of the tested fish are more abundant and less expensive. The focus of the study was to compare the amount of raw chitin that can be extracted from the three species as well as the relative difficulty of collection, processing and filtering. The three phases of the study involved the preparation phase where the drying, grinding and pre-treatment of shells and scales occurred, second was the compositional analysis phase which compared the moisture content of each species, and the third was the extraction phase which includes deproteinization, demineralization and deacetylation of the samples. The study found that crab shells contained significantly more chitin and chitosan than the fish scales ( $p = 0.000109$  and  $2.45E-08$  respectively); but the verified presence of chitin in the scales of the native fishes make them a possible alternative in the absence of a sustainable amount of available crab shells.

**Key Words:** chitin; chitosan; demineralization; deproteinization; deacetylation

## Tide Breaker: Salvaging chitosan from shell waste

James Ryand Cadano<sup>1</sup>, Mariel Jose<sup>1</sup>, Josiah Samuel Moraga<sup>1</sup> and  
Hannah Mae Vegafria<sup>1</sup>

<sup>1</sup>De La Salle University

Chona Camille V. Abeledo<sup>2</sup>

<sup>2</sup>Adviser, Biology Department, De La Salle University

Chitosan, a natural biodegradable and biocompatible polymer, may be obtained from the hard exoskeleton of various shellfish species. It is extracted through a standard three-step process which involves demineralization, deproteinization, and deacetylation. With the knowledge that shell wastes of shellfish contribute to solid waste pollution, utilizing them in chitosan extraction as an act of recycling their shells might help in reducing their contribution to pollution. This study focused on the comparison of raw chitosan yields from the shells of the Asian green mussel (*Perna viridis*), the tropical oyster (*Crassostrea iredalei*), and the king mud crab (*Scylla serrata*). The study involved an assessment of the ease of acquisition of the shell products, the simplicity of sample processing, the length of processing time, and the total raw chitosan yields. The ease of acquisition of the shell wastes of all the three species were comparable but the manual grinding times of the shells of the *P. viridis* were shorter at 1h 32m 55s compared to 1h 53m and 2h 13m for the two other species. *S. serrata* and *P. viridis* had significantly higher raw chitosan yields at 42.50g and 35.53g respectively ( $p = 0.005$ ) than *C. iredalei* at 29.50g. It is recommended to conduct tests on raw chitosan to investigate on the maximum capabilities of these products for its usage in industries.

**Key Words:** chitosan; demineralization; deproteinization; deacetylation

## Acid and Alkali Hydrolysis on Cavendish Banana (*Musa acuminata*) Waste for Bioethanol Production

Bjanca Nicole P. Castro<sup>1,\*</sup>, Juliene Cherryl R. de Guzman<sup>2</sup>,  
Lovely Mae Therese B. Fabros<sup>3</sup>, Julianne Mari R. Gatdula<sup>4</sup>,  
and Dr. Cynthia F. Madrazo<sup>5</sup>

<sup>1,2,3,4</sup> De La Salle University-Manila Senior High School

<sup>5</sup> De La Salle University-Manila Chemical Engineering Department

\*bjanca\_castro@dlsu.edu.ph

Being used globally, fossil fuels are the primary resources of energy. Because of the intensive use of fossil fuels, they had been declining in the past few years, also, are found to be crucial contributors in the production of greenhouse gases. The downside of fossil fuels led to the development of renewable resources of energy, in which one of them is biomass. It is an organic matter mainly utilized to produce biofuels. This study seeks to examine the potential of semi-dried Cavendish banana (*Musa acuminata*) leaves and stalks subjected to alkali hydrolysis and acid hydrolysis in 1%, 3%, and 5% concentrations, to determine the glucose yields using the dinitrosalicylic acid (DNS) method. The banana leaves and stalk were first cut into small pieces and were ground to fine sample using a coffee grinder. For acid hydrolysis, 8g of banana waste was prepared and placed in 50 mL sulfuric acid in 1%, 3%, and 5% concentrations, following a solid to solvent ratio of 1:6. For alkali hydrolysis, 4g of banana waste was prepared and was added to 100 mL of sodium hydroxide in 1%, 3%, and 5% solution. Both hydrolysis methods were done in duplicates. All the solutions were placed in an autoclave and were heated to 121° for an hour. After autoclaving, samples were obtained and prepared for DNS method. The sugar concentrations were determined using UV-visible spectrophotometer. The results showed that acid solutions yielded higher absorbance levels as well as higher glucose concentrations than alkali solutions which demonstrated much lower and negative results from the lower end of the calibration curve obtained. The researchers suggest to conduct more trials as well as sensitive assay methods for more accurate values. It was concluded that acid hydrolysis is potential for bioethanol fermentation and production.

**Key Words:** hydrolysis; bioethanol; DNS; absorbance; glucose

## Comparing the Biopigment Contents of *Arthrospira platensis* Under Varied Light and Culture Media Conditions

Patricia Co<sup>1</sup>, Isabela Dela Pena<sup>2</sup>, John Ira Fidelino<sup>1,\*</sup>, Bianca Millora<sup>1,\*</sup> and Mikayla Miranda<sup>1,\*</sup>

De La Salle University Integrated School, Taft Avenue, Manila, Philippines  
patricia\_gayle\_co@dlsu.edu.ph, isabela\_delapena@dlsu.edu.ph,  
john\_ira\_fidelino@dlsu.edu.ph, bianca\_millora@dlsu.edu.ph,  
mikayla\_miranda@dlsu.edu.ph

*Arthrospira platensis*, also known as *Spirulina*, is an aquatic filamentous cyanobacterium. It has been consumed by humans and animals for its nutritional value and health benefit for decades. However, cultivating it is costly due to the expensive components of its standard medium, the Nitrate-base medium. The current study is a confirmatory research for a research done in the Microalgae Systematics and Applied Phycology Research Unit (MSAPRU) at the Science & Technology Research Center in De La Salle University. The paper aims to determine a more affordable culture medium and the optimum light intensity that will produce higher or the same biomass and biopigment contents as in the standard medium. The research was done in the MSAPRU under the supervision of Dr. Emelina Mandia. The samples were cultured for thirty days, then they were harvested to undergo biomass, chlorophyll-a, and phycobiliprotein analyses. The results of the study show that there is no significant difference with the mean amount of chlorophyll-a and phycobiliprotein when using Urea-Nitrate base medium and Nitrate-base medium. Likewise, there is no significant difference between the specimens exposed to 27  $\mu\text{mol m}^{-2}\text{s}^{-1}$  and 47  $\mu\text{mol m}^{-2}\text{s}^{-1}$  light intensities in terms of their chlorophyll-a content. However, specimens exposed to 47  $\mu\text{mol m}^{-2}\text{s}^{-1}$  light intensity produced a larger biomass content. The experiment showed that the Nitrate-base medium contributed to the production of phycobiliprotein of *A. platensis* due to the abundance of nitrogen. Thus, the study suggests that there is no significant difference between the two media. However, 47  $\mu\text{mol m}^{-2}\text{s}^{-1}$  light intensity yields higher biomass content.

**Key Words:** *A. platensis*; biomass; biopigment; chlorophyll-a; culture media

## Potential of Banana Peelings Charcoal Briquettes as Entrepreneurial Product

John Paolo Quiñanola<sup>1</sup> and Danelle Sophia Tabilo<sup>2</sup>

\*johnpaoloquinanola@gmail.com

\*tabilodanelle@gmail.com

The researchers aimed to know if the banana peelings charcoal briquettes can be a potential alternative to commercial charcoal. Also, the researchers wanted to know if charcoal briquettes made from *saba*, *lakatan*, and *latundan* banana peelings perform at par with commercially available charcoal in terms of time in boiling water, color, texture, and procedures. The research adapted the case study design. The banana peelings were dried and burned. The the ash were collected and mixed with binders. After which, four (4) homemade stoves were made for testing purposes. The researchers used the *saba*, *lakatan*, and *latundan* banana peelings and the commercial charcoal in boiling three different amounts of water particularly, 50 ml; 75 ml; and 100 ml. Also, the researchers compared the color, texture, and the procedures of each kind of charcoal briquettes. Results show that the charcoal briquettes made from *lakatan* peelings were able to boil the water fastest. The banana peelings charcoal briquettes are dark gray in color while the commercial charcoal is black. The textures of banana peelings charcoal briquettes are smooth while the commercial charcoal is rough. All types of charcoal included in the study use fire, but the banana peelings charcoal briquettes are eco-friendlier than commercial charcoal. Therefore, charcoal briquettes made from banana peelings can be an alternative to commercial charcoal. However, *lakatan* charcoal briquettes perform better than other types of banana peelings charcoal briquettes.

**Key Words:** banana peelings; briquettes; commercial charcoal

## Bio-Piezoelectric Nanogenerator: Harnessing Electrical Energy from Fish Bones of Tilapia (*Oreochromis mossambicus*)

Jesse Baliwag<sup>1</sup>, Gian Brazil<sup>1</sup>, Gabriel Perez<sup>1</sup>, Arvin Rufino<sup>1</sup>, and Alphonse Sambrano<sup>1\*</sup>

<sup>1</sup>De La Salle University Integrated School

\*alphonse\_sambrano@dlsu.edu.ph

Bio-piezoelectric nanogenerators have been one of the greatest innovations in the biomedical field due to their ability to produce and generate significant power through the use of mechanical energy without inflicting damage to the environment. Highly efficient piezoelectric materials in the current generation contribute various unavoidable problems to the environment due to high toxicity and complexity in synthesis. However, we have explored a potential biocompatible yet cost-efficient nanogenerator that could provide comparable energy using extracted collagen from the bones of Tilapia (*Oreochromis mossambicus*), called the Fish Bone Bio-piezoelectric Nanogenerator (FBBPNG). The fabricated nanogenerator (FBBPNG) generated a highest output voltage of ~6.5V out of bending movements, while a steady voltage of ~3.06V under mechanical stress of 5.32kPa. Consequently, FBBPNG is also sensitive on several body motion activities such as heel pressing, foot pressing from below side, and wrist movement which can evidently be a source of electricity. Due to its biocompatibility, the FBBPNG would be of great interest in the medical field to be an efficient energy harvesting device which could be used as self-powered implantable and wearable electronics.

**Key Words:** Bio-Piezoelectricity; Fish Bones; Nano-Generator

## Electricity Generation of Common Marine Macroalgae from Lian, Batangas Using a Microbial Fuel Cell

Karl Georg E. Clauss<sup>1</sup>, Ana Patrisha A. Dictado<sup>2</sup>, Lorenzo Dominic G. Noceda<sup>3</sup>, and Miguel Francisco C. Fernandez<sup>4</sup>

<sup>1</sup> De La Salle University — Laguna Campus  
karl\_clauss@dlsu.edu.ph

<sup>2</sup> De La Salle University — Laguna Campus  
ana\_dictado@dlsu.edu.ph

<sup>3</sup> De La Salle University — Laguna Campus  
lorenzo\_noceda@dlsu.edu.ph

<sup>4</sup> De La Salle University — Laguna Campus  
miguel\_francisco\_fernandez@dlsu.edu.ph

Energy is a fundamental aspect of the functioning of society. In recent years, however, various countries across the globe have been facing partial blackouts, electricity shortage, and inaccessible energy resources; hence, the term energy crisis. In a global scale, more than 80% of the world energy consumption comes from the usage of fossil fuels. Although these energy sources have fulfilled a large percentage of societies' needs, it is becoming a need to search for alternative energy sources, such as biomass, due to the increasing world population and the need for energy resources. The primary focus of the study was the performance evaluation of microbial fuel cells involving common marine macroalgae culture, domestic wastewater, and sludge, in terms of voltage output and sustainability. Green, *Halimeda opuntia*, and brown, *Sargassum s p.*, macroalgae were collected from Lian, Batangas during the initial phase of the study. Four laboratory scale dual-chambered microbial fuel cells were created for performance evaluation. The cell voltage for *Halimeda opuntia* reached a peak value of 0.50 volts, which lasted for approximately 90 minutes, whereas, the cell voltage for *Sargassum s p.* reached a peak value of 0.23 volts, which lasted for approximately 50 minutes. Although *Sargassum s p.* reached its maximum voltage in a shorter time interval compared to *Halimeda opuntia*, the latter was able to sustain its voltage output longer than the former. Overall, the performance of microbial fuel cells involving macroalgae, wastewater, and sludge offers a promising self-sustainable electricity-generating system at an affordable cost.



## The Capability of Dalandan Peels in the Removal of Methylene Blue in Aqueous Solution

Joyce Caumban<sup>1</sup>, Lorenzo Berba<sup>2</sup>, Justine de Matta<sup>3</sup>, and Patricia Llamas<sup>4</sup>

<sup>1</sup> De La Salle University Laguna Campus

\*Corresponding Author: joyce\_caumban@dlsu.edu.ph

Fruit peel wastes are usually discarded in landfills and rivers, contributing to pollution. Recent studies, however, have shown that this type of organic waste has the capability to remove dyes from water due to the presence of pectin. Citrus fruits excel most in the removal of dyes due to their citrus pectin, as it is only composed of negatively charged carboxyl functional groups. This paper reviews the capabilities of dalandan peels in the removal of methylene blue in aqueous solution. The dalandan peels were dried and crushed, and were applied to a methylene blue solution. The functional groups and morphologies of the dried dalandan peels were characterized using fourier-transform infrared spectroscopy (FTIR) and scanning electron microscopy (SEM), respectively. Absorbance of methylene blue samples after treatment were taken using a UV-Visible spectrophotometer (UV-Vis). Results show that the average pore diameter of each dried dalandan peel is 3.34  $\mu\text{m}$ . This shows that a methylene blue molecule, which has a length of 0.00125 nm to 0.0016 nm and a width of 0.00057 to 0.00084 nm, is able to fit within its pores. The presence of pectin, specifically its carbonyl functional groups, which are contained in carboxyl groups, have also been detected. This functional group adsorb the molecules of MB through hydrogen bonding. The changes in the intensity of peaks also indicate the interaction between the dried dalandan peels and methylene blue. The removal efficiency of dried dalandan peels were also found to be  $\approx 40\%$ . Results from the characterization techniques and determination of removal efficiency indicate the dried dalandan peels are capable of removing methylene blue from aqueous solution and the process that took place is physical adsorption.

**Key Words:** dalandan; methylene blue; pectin; functional groups; fdg physical adsorption

## Effects of Soil Amendment with Crustacean Shells on the Growth of *Brassica rapa* (Chinese White Cabbage)

Etienne Cancio<sup>1</sup>, Nautica Carrillo<sup>2</sup>, Frances Macalalag<sup>3</sup>, and Ernestine Ramos<sup>4</sup>

<sup>1</sup>De La Salle University – Laguna Campus

<sup>2</sup>De La Salle University – Laguna Campus  
maria\_nautica\_carrillo@dlsu.edu.ph

<sup>3</sup>De La Salle University – Laguna Campus  
frances\_macalalag@dlsu.edu.ph

<sup>4</sup>De La Salle University – Laguna Campus  
ernestine\_ramos@dlsu.edu.ph

Annually, approximately six to eight million tonnes of crustacean shell waste is produced globally. These waste products are rich in useful chemicals such as protein, calcium carbonate, and chitin. A possible use for this waste product is soil amendment in replacement of synthetic fertilizers, which can deplete the soil of its nutrients and causes health problems upon direct exposure. This study aims to determine whether soil amendment with crustacean shells is an effective and safer alternative to synthetic NPK fertilizers in improving the growth of *Brassica rapa* in terms of foliage count, average leaf length and width, plant height, and fresh and dry weight, and in increasing its calcium content. A total of eight (8) setups were made: negative control setup, positive control setup, and with the following soil amendments: 0.5% uncooked shrimp shell, 0.5% uncooked crab shell, 0.5% cooked shrimp, 0.5% cooked crab shell, 0.5% mixed uncooked crustacean shell, and with 5% mixed cooked crustacean shell, arranged in a stratified random block design. Overall, there were no significant differences between crustacean shell soil amendment and NPK fertilizer on the effects of foliage count and height, but there were significant differences between the groups on the effects of fresh weight, dry weight, and leaf width. While there were significant differences, there was at least one soil amendment setup that performed comparably to NPK fertilizer in increasing the growth of the plants in every variable except for dry weight, where NPK fertilizer performed better. Crustacean shell soil amendment also improved the calcium content of the plants in comparison to NPK fertilizer. Overall, crustacean shell soil amendment shows positive effects on the growth of *B. rapa* and is comparable to NPK fertilizer in improving growth.

**Key Words:** *Brassica rapa*; crustacean shells; soil amendment

## Utilization of *Cocos nucifera* (Coconut Shell) and *Perna viridis* (Asian Green Mussel) to Create a New Renewable Energy for Pollutant Reduction

Sergei Allen C. Bugayong\*, Gian Carlo V. Fausto and  
Danielle Angeline G. Lagadon  
De La Salle University Laguna Campus

\*Corresponding Author: sergei\_bugayong@dlsu.edu.ph

Non-biodegradable solid waste materials have been one of the environmental issues that are rapidly increasing due to the fact that it is inclined to the increasing rate of population. Energy, specifically renewable energy, is a must need in today's generation since it provides one of the necessities that every country needs which is electricity. Through the use of coconut shells and Asian green mussels, the researchers reduce solid wastes and convert them in becoming an energy source. Both of these solid waste materials undergone a carbonization process wherein these two turns into carbon. In addition to this, the research also utilized an active material called polyurethane and pencil graphite because of their capacity to electrical conductivity. Both materials were mixed with carbonized green mussel shells. Carbonized coconut shells were also mixed with fermented coconut water since the coconut shells has the ability to boost the electrolytes of it. An aluminum foil and a pencil lead were used as a conductor of electricity for electricity to flow. Furthermore, the pencil graphite (PG), Asian green mussels (AGM) and coconut shells (CS) were then made into ratios with a total number of 9 grams to test which material has the best effect to conduct electricity. With the use of a multimeter, the data was recorded with 3 different voltage and time intervals per ratio to see if the volts will last for a specific time. As a result, the ratio of 3:5:1 had the highest voltage. With the use of this ratio, the researchers were able to power up a lightbulb using twelve paper batteries that were connected using copper wires.

**Key words:** Asian green mussel; battery; coconut water; electricity; energy

## The Effectiveness of Selected Philippine Household Plants in the Removal of Cigarette Smoke Particulate Matter

Angelica Amposta<sup>1</sup>, Angel Batis<sup>2</sup> and Hyunji Cha<sup>3,\*</sup>

<sup>1</sup>De La Salle University Integrated School - Laguna Campus

ma\_angelica\_amposta@dlsu.edu.ph

angel\_batis@dlsu.edu.ph

cha\_cha@dlsu.edu.ph

Particulate matter (PM) is one of the major air pollutants that contribute to air pollution. It can be produced in various ways, however, PM produced by cigarette smoke is known to be one of the most harmful among other pollutants. Since smoking is a common habit among Filipinos, those exposed to it may be affected to the harmful effects of PM, and since most Filipinos spend their time indoors, they are more likely to be exposed to PM because of its abundance in indoor air. To decrease PM found indoors, 3 chosen houseplants—Aloe vera, Sansevieria trifasciata, and Chlorophytum comosum—was tested to see their effectivity in removing PM from cigarette smoke by confining each plant species in a glass box with lit up cigarette sticks and calculating the PM collected and absorbed by their leaves. In the data, the ability of the plant to remove PM is directly related to its leaf morphology: pore area and stomatal density. While all samples performed similarly in removing PM 5 and 10 micrometers, *S. trifasciata* was able to remove a large amount of PM 2.5 and smaller particles. Therefore, *S. trifasciata* is the most effective houseplants among the three.

**Key Words:** *air pollution, particulate matter, cigarette smoke, Aloe vera, Sansevieria adf trifasciata, Chlorophytum comosum*

## Effects of Pyrolyzed Coconut Husk and Banana Leaf Biochar on the Specific Growth Parameters of Shanghai Bok Choy ( *Brassica rapa subsp. chinensis* )

Anthony James M. Absalon, Kyle Christian G. Cruz, Setiel B. Olivarez and  
Mary Angeline O. Macalindong  
De La Salle University - Laguna Campus  
anthony\_absalon@dlsu.edu.ph  
kyle\_cruz@dlsu.edu.ph  
setiel\_olivarez@dlsu.edu.ph  
mary\_angeline\_macalindong@dlsu.edu.ph

The produced biochar from the agricultural organic wastes was aimed to amend the soil quality in relation to its effect to the growth performance of *Brassica rapa subsp. chinensis*. The efficiency of the biochar prepared from banana leaves and coconut husk were investigated in different ratios in order to identify its efficacy to the plant. The set parameters to test the efficiency of biochar are the soil pH and the Shanghai Bok Choy's height, leaf foliage, and leaf area. The data gathered from the different growth parameter and soil property were compared from the output average, for the analysis of the significant difference. Results showed that CHBC, in ratios of 25%, 50% and 75% had insignificant change and has lower growth compared to combined BC and BLBC. When combined however, the growth of the plant increased but significantly decrease in concentrations 75% and above. The variables in terms of leaf area and foliage is at greatest when treated with BLBC only and is directly proportional to its growth. In relation to soil pH, there is a direct relationship; higher concentration of BC results to a more basic soil pH solution. In conclusion, higher concentrations of BC prevents soil acidity and combining two biochars would compensate the component that one lacks and enhance its growth, and treatment with BLBC provided only the best growth because of its high nutritional components even after undergoing pyrolysis.

**Key Words:** Banana leaves; Coconut husk; Biochar; Shanghai Bok Choy

## An Empirical Study on the Effectiveness of SMS-Based Emergency Alerts System in the Philippines

Aengus Martin G. Donaire<sup>1</sup>, Madelein O. Villegas<sup>2</sup>, Kimberly T. Yu<sup>3</sup>  
De La Salle University-Integrated School Manila Campus  
aengus\_donaire@dlsu.edu.ph<sup>1</sup>  
madelein\_villegas@dlsu.edu.ph<sup>2</sup>  
kimi\_yu@dlsu.edu.ph<sup>3</sup>

Disaster management, at the individual and organizational level, deals with issues of planning, coordinating, communicating, and managing risk. This study intended to enhance an existing system that uses mobile phones for emergency awareness by providing strategies which the National Disaster and Risk Reduction and Management Council (NDRRMC) could adapt. Mass text messaging is the ideal tool for disaster management. With SMS, offering disaster support and aid is quick and convenient. Through texting, people can easily participate in the prevention of disasters. Hence, the paper also aimed to develop strategies that will enable emergency messages to be instantly recognizable as an alert and remain on the device until manually cancelled by the user. To realize the objectives, the researchers conducted a survey and interview the NDRRMC to solicit ideas which will be incorporated to the possible strategies. A survey was conducted and using SmartPLS and IBM SPSS Statistics, descriptive and correlational analysis was done between variables. T-statistics of each hypothesis path and correlation matrix of each pair variable showed that perceived ease of use is not correlated to users' task perception but strongly and positively affects users' perceived confidence, usefulness, and satisfaction. Validation of the results through focus group discussion showed similar results. This led to the researchers' suggestions on the improved system that will not only be interactive but will also encourage every notified citizen to be more receptive to the alert. Implications are drawn for future research on user acceptance.

**Keywords:** SMS; emergency alerts; mobile phones; natural disasters

## Automatic Hate Speech Detection in Philippine Election-Related Tweets: A Natural Language Processing Approach

Neil Vicente Y. Cabasag<sup>1, \*</sup>, Vicente Raphael C. Chan<sup>1, \*</sup>, Sean Christian Y. Lim<sup>1, \*</sup>,  
Mark Edward M. Gonzales<sup>1, †</sup>

<sup>1</sup> Science, Technology, Engineering, and Mathematics,  
De La Salle University Integrated School–Manila

\* {neil\_cabasag, vicente\_chan, sean\_christian\_lim}@dlsu.edu.ph

† Corresponding Author: mark\_edward\_gonzales@dlsu.edu.ph

Filter bubble formation in social networking sites has opened avenues for the expression of disparaging sentiments, proliferating hate speech (Müller & Schwarz, 2018). While technologies have been devised to address this, systems contextualized in the Philippine cyberspace are essential since hate speech is deeply tied to the context of a locale. This research addresses this need by developing a model capable of automating hate speech detection. A subset of a corpus of tweets posted during the 2016 Philippine electoral campaign was labeled as either non-hate- or hate-containing and annotated with the target(s) of hate. Language-independent features were extracted, including term frequency-inverse document frequency, term occurrence, and their combination. The effect of hashtags was also explored. Rule-based, machine learning, and deep learning classifiers were built. For binary classification, logistic regression using TF-IDF and hashtag segmentation performed best (F1=77.47%), outperforming rule-based by ~10% F1. Sequential neural network failed to outperform logistic regression completely but scored competitively. For multilabel, perceptron using TF-IDF+TO and hashtag segmentation performed best (micro-F1=67.80%), albeit failing to outperform rule-based by above 10% F1. The main contribution of this paper is a comparative investigation of different classifiers using surface language-independent features for detecting and classifying hate speech from the Philippines.

**Keywords:** Hate speech; text classification; machine learning; sequential neural network; Twitter

## Dungeons and Dragons: A Test for User Satisfaction with a Virtual Dungeon Master

Clyve Dwainne T. Belen<sup>1,\*</sup>, Juan Miguel L. De Leon<sup>1,\*</sup>,  
Hans Oswald A. Ibrahim<sup>1,\*</sup> Charles Reuven G. Uy<sup>1,\*</sup>

<sup>1</sup>Science, Technology, Engineering, and Mathematics  
De La Salle University Integrated School -Manila

\*Corresponding Author: clyve\_belen@dlsu.edu.ph,  
juan\_miguel\_deleon@dlsu.edu.ph,

hans\_ibrahim@dlsu.edu.ph, reuven\_uy@dlsu.edu.ph

*Dungeons and Dragons is a tabletop role-playing game that is quite famous throughout the world for its open world mechanic, allowing its players to create unique scenarios. A player designated as the dungeon master controls the flow of the game, how it shall progress and the actions the other players can undertake. The dungeon master plays an essential role in every Dungeons and Dragons playthrough; his/her scenario creation may as well decide whether the session would be entertaining or not to the other players. Computing technologies pose an opportunity for the game to be migrated to a web-based platform, facilitating online gameplay even if the players are in different geographical locations, and an intelligent software agent to mimic human dungeon masters in generating unique scenarios. The main focus of this study is to determine user satisfaction when playing with a virtual dungeon master as compared to real human dungeon masters. Participants who have experienced the tabletop dungeons and dragons' gameplay were selected as players. They evaluated the online game to provide an assessment of how the web-based game compared against the tabletop game in terms of entertainment and engagement. Novice players that seldom play the game were also included as participants and their responses were analyzed and compared with those of expert players.*

**Key Words:** Role-playing game; user satisfaction; online games; story generation



## Development of an Electronic Health Records System Prototype for the Health Services Office of De La Salle University-Laguna Campus

Miguel Antonio Chavez<sup>1</sup>, Raymund Luis Medialdea<sup>1</sup>, Gerald Miguel Mombay\*  
<sup>1</sup>De La Salle University - Laguna Campus Health Services Office  
\*Corresponding Author: gerald\_mombay@dlsu.edu.ph

Studies show that electronic health records system is key in increasing efficiency and quality of health service. Paper records are becoming more obsolete in the advent of digital datakeeping technology as their advantages are becoming more apparent. The study aims to create an electronic health records system for the Health Services Office (HSO) of the De La Salle University - Laguna Campus which still utilizes traditional paper records, integrating the tasks of the HSO into the system, and letting them evaluate its usability and efficiency. Before creating the system, an interview was done with the head of the HSO, Dr. Mary Abegail Pineda, in order to assess what is needed to be done with the system. With the given information from the interview, the system is developed using the waterfall model approach. The system utilizes the programming language SQL for the database, HTML and CSS for the website end of the system, and the scripting language PHP to connect the database and the website. After the development stage, a second interview with the head of the HSO was commenced in order to evaluate the system whether it addresses the needs of the HSO. In the said interview, recommendations are given on how to improve the system such as better privacy for the patient information and a much more intuitive organization of health data. But according to the head of the HSO in the interview, the records system is adequate and sufficient enough in addressing the needs of the HSO in their recordkeeping tasks.

**Key Words:** database management system; health records system; mySQL; PHP

## The Kapampangan Lemmatization Algorithm (KaLA)

Andrew Miguel V. Pagdanganan<sup>1,\*</sup> and Joaquin B. Salvador<sup>1,\*\*</sup>

<sup>1</sup>Student of Philippine Science High School - Main Campus

\*Corresponding Author: b2019.migo.pagdanganan@pshs.edu.ph

\*\*Corresponding Author: b2019.joax.salvador@pshs.edu.ph

KaLA is a rule-based Kapampangan lemmatization algorithm inspired by MAG-Tagalog, a rule-based Tagalog morphological analyzer and generator by Adlaon, et al (2017). KaLA is composed of two modules: the (1) Rule Compiler, which handles the grammar rules for processing morphophonemic changes, and the (2) Analysis Module, which employs a survival-of-the-fittest approach to determine the optimal root word. Similar to MAG-Tagalog, KaLA is able to process prefixation, infixation, suffixation, partial and full reduplication in Kapampangan nouns, verbs, and adjectives. Test results gave an accuracy of 67.38%, a precision value of 82.76%, a recall value of 76.30%, and a F1 Score of 0.7940 for the analysis of 420 words from cleaned text from a Kapampangan novel, “I ng Buak Nang Ester ” and the Kapampangan version of the Holy Bible . These metrics could be improved by analysis of other Kapampangan morphological elements such as diacritic marks, better distinction between parts-of-speech, or text normalization on colloquial language. Morphological analysis on fused Kapampangan pronouns can also be carried out in the future.

**Key Words:** Kapampangan; lemma; morpheme; rule-based; part-of-speech

## Assessment of the Financial Fitness for Life – High School Test in Determining the Financial Literacy of Senior High School Students

Lance Fernando<sup>\*1</sup>, Jesse Edward Flipping<sup>\*2</sup>, Nicholas Philson Lee<sup>\*3</sup>, Ella Puerto<sup>\*4</sup>, Shirlee Ocampo<sup>#5</sup>

<sup>\*</sup>Science, Technology, Engineering and Mathematics – Senior High School,  
De La Salle University-Integrated School

<sup>#</sup>Mathematics and Statistics Department, De La Salle University  
2401 Taft Avenue, Malate, Manila, 1004 Metro Manila, Republic of the Philippines

<sup>1</sup>lance\_fernando@dlsu.edu.ph, <sup>2</sup>jesse\_flipping@dlsu.edu.ph,

<sup>3</sup>nicholas\_lee@dlsu.edu.ph, <sup>4</sup>ella\_puerto@dlsu.edu.ph, <sup>5</sup>shirlee.ocampo@dlsu.edu.ph

Financial literacy, crucial for financial and economic understanding, has been declining locally and globally, especially among the young and the elderly – due to several factors such as age and educational background. A popular standardized financial literacy test known as Financial Fitness for Life – High School test – while established as reliable and valid in its country of origin, United States – is yet to be tested in other countries, such as Philippines. The study aimed to describe the financial literacy of Grade 11 Senior High School students in De La Salle University – Integrated School, to determine the factors affecting the test scores of the students, and to confirm the reliability and validity of the test. The researchers conducted the test to 282 simple random sampled Grade 11 students. With overall mean score of 25.71 (51.42%), the test takers exhibited low to medium financial literacy – 132 (46.81%) of them classified under “low”, and 150 (53.19%) under “medium”. At  $\alpha=0.05$ , the two-way analysis of variance revealed no significant interaction between strands and genders in the overall scores, and also showed no significant differences in the said scores among strands or genders. However, the Kruskal-Wallis H-test showed significant differences in total income and credit scores among strands; the Mann-Whitney U-test, on the other hand, revealed significant differences in total saving scores among genders. In contrast to the previous literature’s reliability value  $\alpha=0.86$ , the acquired Cronbach’s alpha  $\alpha=0.59$  indicated the test’s poor reliability – however, content-wise and criterion-wise valid; the factor analysis using principal axis method and varimax rotation showed that the items under sub-themes did not load together to form five factors (test themes). The researchers recommend the implementation of personal finance education and programs in the Philippines, as well as a local standardized, reliable and valid financial literacy test.

**Key Words:** financial literacy; high school students; test theory; item response theory; multivariate analysis

## Designing A Blended Learning Readiness Program for Incoming Senior High School Students

Clare Rabin U. Ramos<sup>1</sup>, Christian Matthew M. Silva<sup>2</sup> and Mathew Stephen Andrei C. Sy<sup>3</sup>

<sup>1</sup> De La Salle University – Laguna Campus

\*Corresponding Author: mathew\_sy@dlsu.edu.ph

Blended Learning is the new approach to learning as it aims to give the students freedom on how they are to do the tasks given to them by their mentors. However, because the fact that the program is a generally new approach, and the research group being a part of the pioneer batch, they see that there are still some lapses on the students' readiness on Blended Learning. English was chosen as it would be the common subject that the student will take regardless of the strand chosen. The study utilizes the Visual, Auditory, Reading and Kinesthetic (VARK) Test by Neil Fleming to identify the different learning styles that the Grade 10 Students possess and relate them to their corresponding learning outcomes. The study also utilizes other tests: Academic Motivation, Performance and Satisfaction scales that are necessary to measure the student's blended learning readiness in the field of English. The study is divided into two phases: The first phase would be the data gathering on what the students possess as their learning style and their corresponding scales on academic motivation, performance, and satisfaction. The second phase is designing the program based on the results of the students' needs for their readiness in the Blended Learning Program currently implemented in Senior High School. The data will be analyzed and tested using IBM SPSS Statistic, through this, the research may conclude on what needs to be focused upon on the Blended Learning Readiness Program to be formulated in the later stage of the study.

**Key Words:** Blended Learning; Senior High School; Readiness; Statistics

## Resident Employment Status and Level of Motivation of Angat Kababaihan in Brgy. Pinagtung-ulan

Pahulayan, Sophia Nicole and Laquian, Kian Carl  
De La Salle Lipa Integrated School – SHS Community  
HUMSS Strand

Angat Kababaihan 2018 - 2019 is a program generated by De La Salle Lipa students to empower indigent women of Brgy. Pinagtung-ulan, San Jose, Batangas. It provides them with seminars and activities concerning women empowerment, as well as job certification for their participation on physical therapy training sessions. This research focused on women in their legal working age in examining the strength of the relationship between their employment status and their level of motivation in partaking in the program. The Porter-Lawler Expectancy Theory, which states that motivation is highly influenced by the reward one expects to receive after the completion of a task, was used as a basis for the study. A descriptive quantitative research design was employed to test the relationship of the variables. The data gathered were evaluated using the chi-square statistical treatment through SPSS (N=21). Results yielded a high mean in terms of motivation and a strong relationship between the variables. This affirmed the initial claim that majority of the women who are both unemployed and underemployed are more motivated to participate because of the job certification reward. The researchers conclude that a control of one's means of livelihood greatly affects one's sense of independence and empowerment, especially among marginalized women.

**Keywords:** employment status; level of motivation; women empowerment program; Barangay Pinagtung-ulan

## A Look at the Lives of the Elderlies in Barangay Salapan, San Juan City, Philippines: Self-rated Quality of Life and Associated Factors

Paula Anjeline M. Cualteros, Stephanie Gayle H. Dela Cruz,  
Faith Lynnwel P. Dela Vega, Ingrid Alexandra T. Delgado,  
and Albert Geo Dominic C. Reyes

The elderly population in the Philippines is considered as an integral fabric of the country's culture and society. This study attempts to identify the self-rated quality of life of members from Barangay Salapan's Senior Citizens' Association, quantifying the factors that impact this quality of life and measuring its significance to their personal characteristics. A survey is administered to 170 elders, derived from a total population of 200 elders given a 95% Confidence Level, and a margin of error of 3%. A face-to-face survey using a Likert-type questionnaire from the World Health Organization's Quality of Life Spirituality, Religiousness, and Personal Beliefs (SRPB) Field-Test Instrument is employed to measure the respondents' Personal Characteristics, Work Ability, Religious and Non-Religious Life Satisfaction, Support System, and perceived Quality of Life. An Independent Sample T-Test was employed to examine the significance between personal characteristics and the quality of life and its associated factors. Furthermore, a means table was used to exhibit the overall quality of life based on the domains. Results suggest that personal characteristics of an elder have little significance on their quality of life. However, the overall quality of life fits the above average bracket, with a mean of 4/5. In conclusion, the elderlies of Barangay Salapan exhibit good quality of life within the community based on the domains considered, with their personal characteristics holding little to no bearing in this perceived quality of life and its associated factors.

**Key Words:** Personal Characteristics; Work Ability; Religious and Non-Religious Life Satisfaction; Support System; Quality of Life

## Comparative Analysis on the Intergenerational Perception of Marriage

Maria Sabina Coronel Arcenas<sup>1</sup>, Kyle Jairus Cariño Dee<sup>2</sup>,  
Rafael Antonio Siena Lapore<sup>3</sup>, Raymond Gabriel Natividad Nachura<sup>4</sup>,  
John Benjamin Romano Sebastian<sup>5</sup>, Gavin Nicolas Martin Velasco<sup>6</sup> and  
Christian Jerico Juana Zerrudo<sup>7</sup>

Multiple Intelligence International School

\*Corresponding Author: marcenas@mischool.edu.ph

According to the 1987 Philippine Constitution, “Marriage, as an inviolable social institution, is the foundation of the family and shall be protected by the State.” However, marital separation rates have been rapidly increasing and, with the House Bill No. 7303 (Divorce Bill) being too costly and time consuming. The researchers believe in the sacredness of marriage and, with study, hope to restore it back to its sublimity. The study mainly focuses on the analysis towards the perception on marriage between selected Baby Boomer, Millennial and Generation Z demographics. The researchers planned on centering the study based on two main theories: the Social Exchange Theory and the Symbolic Interaction Theory, which both propose that social concepts result to a shift the perception of an idea. In this case, the researchers mainly focused on the similarities and differences of varying demographics as an effect of multiple factors. In order to achieve this, the researchers conducted a quantitative survey that analyzes different perceived views on: the Sanctity of Marriage, Marital breakdown, Love vis-as-vis Marriage, and Legal and Cultural aspect of Marriage. The locale of the study was in Quezon City due to its proximity and the selected respondents ranged from individuals who belong to the the Baby Boomer, Millennial and Generation Z demographic. During the conduction, it was found that there was a significant difference amongst the generational groups which the researchers mainly accredit to differing media, religious and other exposed factors.

**Key Words:** Marriage; Marital Separation; Demographics; Social Exchange Theory; Symbolic Interaction Theory

## In Stories, We Learn: Cybersecurity Awareness and Privacy Breach Experience on Social Networking Sites Self-Disclosure

Joric Bernardo A. Batac<sup>1\*</sup>, Allen Christianne U. Gabor<sup>1</sup>,  
Christian Paul S. Velasco<sup>1</sup>, and Jose Luis N. Villanueva<sup>1</sup>

<sup>1</sup>Science, Technology, Engineering, and Mathematics Strand  
De La Salle University – Laguna Campus

\*Corresponding Author: joric\_batac@dlsu.edu.ph

Today, the internet has become an environment for social interactivity and it appears to be becoming a place capable of exposing one's personal information. This self-disclosure of private information is bounded by an implicit and mutual responsibility to preserve the information between the owner and recipient of information; violation of this "social contract" may result in privacy turbulences that may, in turn, cause privacy breach experiences. Given these facts, a two-part experiment involving a pseudo-application was conducted to determine whether experiences of privacy breaches and their cybersecurity awareness would affect their disclosure of information in a social networking site setting, with the hypothesis of proving that cybersecurity awareness and privacy breach experience would have a significant effect on one's disclosure in a social media setting. Aiming to put an emphasis on the importance of internet privacy, theories such as Social Penetration Theory and Self-Disclosure Outcome Behaviors on Social Networking Sites served as the lenses for examining the aforementioned variables. Participants were given randomly assigned cybersecurity awareness levels and were then asked to answer a pseudo-application with the goal of examining their self-disclosure behaviors and tendencies. After utilizing a 3 (Cybersecurity Awareness: low, medium, or high) x 2 (Privacy Breach Experience: experienced or not experienced) factorial design, the results showed that cybersecurity awareness interacted with privacy breach experience which resulted in these two factors' significant effect on selected self-disclosure questions.

**Key Words:** cybersecurity awareness; privacy breach experience; social networking sites self-disclosure



## The Phenomenological Study of the Experience of Listening to the Songs of Kim Jonghyun: A Case of Affective Lyricism and Emotions

Ram Bustamante<sup>1</sup>, Renee Calingo<sup>2</sup>, Isobel Gerardo<sup>3</sup> and Andrea Laurente<sup>4</sup>  
HUMSS 12 - A

Ram Bustamante : ram\_bustamante@dlsu.edu.ph

Renee Calingo: renee\_calingo@dlsu.edu.ph

Isobel Gerardo: isobel\_gerardo@dlsu.edu.ph

Andrea Laurente: andrea\_laurente@dlsu.edu.ph

Music is often regarded as the universal ‘language of emotions’. It is through music that one expresses, arouses and evokes various emotions in listeners, regardless of temporalities, cultures and geographies. This study examines the lyricism of Korean Pop songs and its relation and impact on the emotions of selected Filipino adolescent listeners. For this paper, we refer to singer-composer Kim Jonghyun’s writing style and lyricism. Interviews were conducted with Senior High School students of De La Salle University Manila Campus. The interviewees consisted of fans and non - fans of Kim Jonghyun. Drawing on the experiences of interviewees while listening to Kim Jonghyun’s songs, the participants underwent range of emotions from sadness to nostalgia to vulnerability to escapism. Furthermore, they also formed a sense of comfort at certain songs, as well as ideas of activism. Despite disparate understandings in relation to lyrical interpretation due to various factors - cultural, social, political, geographical - , the message that Kim Jonghyun wanted to portray and convey through his written works was captured and grasped by the listeners. Lyricism traverses and transcends in order for the listeners to further understand the song, especially when one can relate it to a point within their lives. In this regard, music becomes a channel and platform for lyrics to evoke not just emotions but also messages and voice in the form of affective lyricism.

**Key Words:** lyricism; phenomenology; K-Pop; emotions; music

## Interpretative Phenomenological Analysis on Military Resilience: The Essence of a Soldier's Fighting Spirit

Yanni Jose Francisco  
12 A HUMSS Laguna Campus  
yanni\_francisco@dlsu.edu.ph

The development of resilience is usually associated with human and environmental factors that are experienced by an individual. Resilience refers to the ability to use one's personal resources to cope with or bounce back in the face of adversity. Crisis situations are not that uncommon, especially in the military setting. However, there appears to be a dearth in scholarly literature that identified the lived experiences of military personnel under adverse conditions, as their focus. With this research gap in mind, the goal of this qualitative study is to procure the in-depth interpretations of soldiers about their experience of resilience before, during and after their deployment to the Marawi Crisis in the Autonomous Region of Muslim Mindanao. The data gathering was done through a one-on-one in-depth semi structure interview. Specifically, this study uses the approach of Interpretative Phenomenological Analysis to investigate how the soldiers give meaning to their experiences. The analysis has revealed seven thematic elements of resilience which were then subjected to an in-depth discussion regarding its impact on the soldier's lived experiences.

**Key Words:** Resilience; Military; Interpretative Phenomenological Analysis; Semi-Structured Interview; Thematic Analysis

## The Representation of Folklife in the Woodcrafts and Taka Art of Selected Artists in Paete, Laguna: A Visual Ethnography

Clarie Crystal Rose S. Abinan<sup>1</sup>, Katherine C. Chen<sup>2</sup> and  
Dane Gabriel S. Guinto<sup>1</sup>

<sup>1</sup>De La Salle University Integrated School Laguna Campus  
Corresponding Author: clarie\_abinan@dlsu.edu.ph,  
katherine\_chen@dlsu.edu.ph, dane\_guinto@dlsu.edu.ph

Paete has a celebrated reputation for its handcrafted products. The town is not only widely known for its woodcrafts, but it has also become popular for its taka art. On one hand, it is largely acknowledged that traditional art and craft making serve as modes of expression of the imagination of the Paeteño artist. On the other, these pieces of material culture may also embody the way of life of the people in Paete, particularly their beliefs, traditional practices and customs. While research is rich on the visual arts of this town, the literature that highlights and recognizes wood crafts and taka art as representations of nonmaterial culture is scarce. It is for this reason that this study was carried out. Through visual ethnography and in-depth interviews, this research aimed to determine how Paeteño artists drew inspiration from the local people's way of life and the ways by which they sustain this cultural heritage of wood crafting and taka art-making.

**Key Words:** Culture; Folklife; Representation; Taka Art; Woodcraft

## Cultural Reflection of Fashion and Death

Fritz Aldon C. Arce<sup>1</sup>, Audrea Arjaemi T. Tabadero<sup>1</sup>, Eurrecca Gef C. Binaso<sup>1</sup>,  
Jasmine C. Alfredo<sup>1</sup>, Ivy Dianne P. Macabitas<sup>1</sup>, and Elaine Angeli S. Mecos<sup>1,\*</sup>  
Herbert I. Orteza<sup>2</sup>

<sup>1</sup> Student Researchers, Lorma Colleges Special Science High School

<sup>2</sup> Research Adviser, Lorma Colleges Special Science High School

\*Corresponding Author: mecoselaine4@gmail.com

We live in an era where, within our culture, beautifying the dead is seen as an essential way to provide a refined look for the bereaved family's satisfactory. Herewith, this study revolves around the makeup and clothes worn by the dead, as it turns out to be a unique kind in the fashion industry. Accordingly, customs, traditions, and historical circumstances have been shaping the way people in various times feel about clothing and exposure. Thus, to generate participants' perspectives, the researchers focused on using Narrative and Phenomenology Research Designs to accumulate textual information, and made use of Snowball Sampling to search for funeral directors and embalmers. The data gathered is grouped thematically based on the framework and the general factors behind the answers of the respondents. This study identified adaptation to beliefs, execution of cultural practices, religious affiliations, preservation of traditional apparels, carrying out of cultural practices, and recognition of symbols as the factors that have led to the evolution of the fashion of the dead. The researchers determined how the funeral directors execute trends through themes and familial requests, and how they manifest professionalism and exceptional artistry in beautifying the dead. Research also shows that the fashion of the dead lies on the conformity on beliefs, symbolism recognition, and familial decisions. The purpose of this research is to determine the factors regarding the fashion of the dead whilst discussing its uniqueness in the perspective of services, and its manageability in terms of religion, decisions, and societal standards.

**Key Words:** funeral; fashion; societal standards; familial decisions; culture

## Expanding and Validating the Applicability of the Filipino Needs Theory of Motivation on Filipino College Students

Adrian Opinion<sup>1</sup>, Shereen Villacorta<sup>2</sup>, Paolo De Guzman<sup>3</sup>, Alexander Flores<sup>4</sup>,  
and Clare Garcia<sup>5</sup>

<sup>1</sup>Upper School Multiple Intelligence International School

<sup>2</sup>Upper School Multiple Intelligence International School

<sup>3</sup>Upper School Multiple Intelligence International School

<sup>4</sup>Upper School Multiple Intelligence International School

<sup>5</sup>Upper School Multiple Intelligence International School

\*Adrian Opinion: aopinion@mischool.edu.ph

This study attempted to expand the premise of a recently created Filipino theory of motivation created by Ilagan, Hechanova, Co, and Pleyto (2014) by incorporating college students into its scope as the current theory only measured Filipino workers. The theory was based on Sikolohiyang Pilipino, and the criticisms/limitations of Maslow's Hierarchy, Mclellands and Herzberg's motivational theories. The theory premised 4 main areas of motivation for workers: career, family, organizational, and work motivation. These motivations were correlated to work engagement. To measure college students, the area of work motivation was revised to academic motivation, and work engagement to college engagement. The theory is essential to the body of knowledge of Filipino psychology as, according to Ilagan et al., (2014) before the creation of the theory, there were no existing Filipino theories of motivation. The authors of this study seek to contribute to the body of knowledge of Filipino motivation, and assist in the provision of solutions for college student related motivational problems that the academe and various institutions may take into account. The researchers of this study were able to survey 100 respondents from colleges in Metro Manila, from years 1-4, from various social classes. The statistical analysis concluded that college engagement and the four motivational areas mentioned do not have a significant correlation, and this results is likely due to the limited number of responses collected, and the nature of the scales used.

**Key Words:** college students; needs; motivation; college engagement

## Determining how Familial Influence, Entrepreneurial Education, Entrepreneurial Experience, and Experience with Social Problems affect Social Entrepreneurial Intention

Joaquin Carlos R. Asuncion<sup>1</sup>, Rae Victorinette R. Lualhati<sup>1</sup>, Joshua Cole T. Co<sup>1\*</sup>

<sup>1</sup>De La Salle University Integrated School

\*Corresponding Author: joshua\_cole\_co@dlsu.edu.ph

Social Entrepreneurial Intention is the will of a person who aims to start or create a new social business. This research aims to determine the effects of Familial Influence, Entrepreneurial Education, Entrepreneurial Experience, and Experience with Social Problems on the Social Entrepreneurial Intention through a correlation and multiple regression analysis of the responses of the Senior High School students of the Accountancy, Business, and Management strand of De La Salle University-Manila. Results of the quantitative and qualitative data analysis vary—quantitative data analysis showed that Entrepreneurial Education is the only variable that directly affects the students' Social Entrepreneurial Intention. On the other hand, the qualitative data analysis suggests that Familial Influence affects the students' Social Entrepreneurial Intention the most. With this, the researchers suggest further future research, employing the variables used in this paper.

**Key Words:** Social Entrepreneurial Intention; Experience with Social Problems; Entrepreneurial Experience; Entrepreneurial Education; Familial Influence

## **A Study on the Effectiveness of Total Quality Management on the Organizational Performance of Restaurant Businesses in Robinsons Place Manila**

Justin Kenndrick Macasilli-Tan<sup>1</sup>, Riam Levi Magalonga<sup>2</sup>, and  
Nick Randall Rabajante<sup>\*3</sup>

<sup>1,2,3</sup>De La Salle University - Manila

\*Corresponding Author: nick\_rabajante@dlsu.edu.ph

One essential component in managing a business is an effective managerial style. Restaurants in the 21st century are currently having problems with implementing a managerial style that continuously improves the business without sacrificing its cost. This study can shed light on the effectiveness of Total Quality Management (TQM). This study is limited to the effects of TQM in terms of organizational performance among restaurants at Robinsons Place Manila. This survey was distributed to 22 different managers of restaurants in Robinsons Place Manila. The data were then analyzed using confidence interval and simple regression analysis. The results showed all of the variables except Process Management and Operation Efficiency had a mean greater than 4. All factors also have low standard deviation with 1.0324 being the lowest and 1.1628 being the highest. Each of the regression analysis conducted showed a positive slope and significant relationship between the variables analyzed. In conclusion, the study could support the claim that Total Quality Management positively affects the performance of an organization.

**Key Words:** management; restaurant; Total Quality Management;

## The Impact of Customer Satisfaction and Management Practices of Chinese Restaurants in Binondo that Lead to Business Success

Alix, Martin Jiro S.  
Niño, Gamaliel Loim L.  
Pulhin, Ingrid F.  
Sarmiento, Ara Venice L.

The Chinese, aside from their business prowess and their long history of settlement in the country, have created a significant impact in Filipino culture which is very observable through food. Ask around any Filipino and they would be able to name long standing restaurants and food oriented businesses that would resound a familiar Chinese name with the likes of Ma Mon Luk and Eng Bee Tin which are usually found within Binondo. Captivated by this history of the Chinese in the Philippines, their cultural influence and their clear influence when it comes to the food culture of the Philippines, this research aims to reveal the impact of impact of customer satisfaction and management practices of Chinese Restaurants in Binondo that lead to business success. The research was conducted within Binondo due to its reputation of bearing a multitude of Chinese restaurants, with some even having been established before the second World War. Additionally, the researchers have decided to survey restaurants that have at least a rating of three (3) stars in Zomato. The study made use of two sets of respondents, which include the workers and customers of the chosen establishments. The sampling method used, meanwhile, was convenience sampling. Primary data was gathered using survey questionnaires, the first of which was given to workers and managers in order to evaluate the Total Quality Management (TQM) of the business. The second questionnaire, meanwhile, was given to the customers in order to evaluate the Service Quality Management (ServQual) of the business. In analyzing the data, the researchers made use of the weighted mean, standard deviation, correlation of coefficient, correlation of determination, and simple linear regression. This study found that only tangibles and empathy did not have a high correlation to business success. The researchers also focused on several aspects in the conduct of the survey towards employees these namely: Leadership, Human Resource Management, Customer Focus, Strategic Quality Planning, Process Quality, Information and Analysis, and Business Success. Almost every variable has a strong positive relationship with the exception of Human Resources Management whose  $r$  fell short of the cutoff which is 0.50. In terms of predicting Business Success, only the variables Leadership, Strategic Quality Planning, and Process Quality are able to adequately predict or explain Business Success by having an  $r^2$  that is greater than 0.5.



## Customers' Satisfaction on the Product and Service of Pastil Stalls located in Pioneer Avenue

Hans Dominic Reyes<sup>1</sup>, Thalia Leocel Pila<sup>2</sup>  
hansdominicreyes@gmail.com<sup>1</sup>  
thalialeocelpila831@gmail.com<sup>2</sup>

Customer satisfaction is an avenue that allows the creation and the sustainability of meaningful relationship with the customers. Pastil businesses had recently become very popular in General Santos City. Pastil is a Maguindanaoan rice-with-viand meal wrapped in banana leaf. This study determined the customers' satisfaction on pastil stalls located along Pioneer Avenue. The researchers pursued this study in order to know the reasons why people choose to avail pastil and also to identify how their habit of eating in pastil stalls affect their food preference. This study utilized the survey research method to fully determine and analyze the customers' satisfaction on the products and services of pastil stalls located in Pioneer Avenue. The formulated and validated questions included in the survey were based on the Kano theory and SERVQUAL theory. Results showed that customers eat pastil in stalls located along Pioneer Avenue once a week because of these top three (3) reasons: affordable price, appetizing products, and availability of freebies. The level of customer satisfaction indicates that the customers are satisfied with both the product and the services provided by the pastil stalls. However, product received a higher satisfaction rating than service. This study hereby concludes that customer satisfaction plays a vital role in operating a business such as building better customer relationship and increasing customer loyalty.

**Key Words:** customer satisfaction; pastil; pastil stalls

## Accounting Employee's Job Satisfaction in Relation to the Turnover Intention of Chevron Incorporated in Makati City.

Ronilo D. Cervantes Jr.  
Treston International College  
ronilocervantes11@yahoo.com

This study aims to know the significant relationship between Job Satisfaction and Turnover Intention among the accounting employees of Chevron Incorporated in Makati City. The study also aims to know what factors significantly affects an employee to their overall job satisfaction. The study is deemed to the professionals who are involved in managing employee relationship and liaison to the Human Resource Department. The researcher used the Slovin's Formula to get the desired number of respondents which is 80. In gathering the data, the researcher utilized a survey questionnaire related to the Job Satisfaction Survey of Dr. Paul E. Spector. IBM SPSS Statistics is used to perform the statistical inquiries of the study. The result of the study shows that job satisfaction and turnover intention have an inverse relationship. The study also found out that demographic descriptors also have significant relationships with job satisfaction. Most of the employees are satisfied with their job and satisfied with the supervision facet of the company. Overall, the company acts and performs a superior employee empowerment.

**Key Words:** Job Satisfaction; Turnover Intention; Shared Service Center

## To Buy or Not To Buy: The Influence of Celebrity Endorsements on Fangirl Preference

Lance Martell Ordas<sup>1\*</sup>, Bianca Bea Nolasco<sup>1</sup>, Juan Crisostomo Rodriguez<sup>1</sup>,  
Matthew Allen Abarquez<sup>1</sup>

<sup>1</sup>San Beda College Alabang

\*Corresponding Author: lanceordas@gmail.com

As previously stated by Adnan, Jan, and Alam (2017), a consumer's intention to purchase can be influenced by celebrity endorsements. However, despite the existence of studies tackling the influence of celebrity endorsements to the purchase intention of consumers, there are limited researches investigating this phenomenon from the perspective of fans. Hence, the present study was conducted to explore how fangirl preference is affected by their celebrity idol's endorsements. The study made use of a phenomenological design, in which three fangirls of a male Filipino celebrity-endorser were taken as respondents. It was found that the fangirls' bias on their celebrity idols can greatly affect their attention to the product being endorsed. Moreover, a sense of trustworthiness has been observed as established between the fan and the celebrity causing a positive change of perception in the product's quality. Nevertheless, the fangirls were found to be more critical in analysing the products being endorsed when it comes to the actual purchase already.

**Key Words:** Fans; Celebrities; Endorsements

## Promotions and Discounts to the Behavior of Consumers in the Food Industry

Julieane Santos, Geraldine Andaya, Jule Aguilar, Allison Arienda, Kryss Sayo,  
Dr. Joseline M. Santos, Mrs. Ruth R. Sealmoy and Mrs. Emeline R. Mercado  
Bulacan State University, Accountancy, Business and Management Strand  
Corresponding Author: santos.julieane123@gmail.com

This study contained the analysis of the behavior of the consumers to various promotions and discounts offered in the food industry. Using stratified random sampling, the researchers identified four specific types among the 12 food establishments located at Eco Commercial Complex building. Being bakery, café, casual dining, and unli-buffet, the researchers surveyed 150 respondents including the business owners together with its personnel. The objective of this study to identify consumer's preferences and use it as a tool for reckoning certain establishment success among its competitors. It would be beneficial for the business owners to implement the most effective marketing scheme for a responsive reaction of their target market or customer. The researchers found out that the most considered factor of the business personnel in giving out promotions and discounts is promotional strategy thus, food choices and preferences of the consumers were greatly influenced by price discounts and product promotions offered. Hence, the researchers concluded that consumers found convenience in respond to certain sales, discounts, promotions and marketing strategies that would also benefit the business itself. For future researchers who wished to dwell on the similar study, the researchers recommended to evaluate the level of satisfaction being attained by the consumers to produce products that were able to satisfy their expectations.

**Key Words:** Food Industry; Discounts; Marketing; Consumer Behavior; Promotion Strategies

## Right to Vote: Students' Involvement in Student Government Elections

Carla P. Ac-ac, Liana Marie S. dela Cruz, Marco P. Ramos, and

\*Marielle Angeli P. Villafuerte

Mr. Jose Luis R. Aricheta, Mrs. Emeline R. Mercado, and

Joseline M. Santos, Ph.D

Bulacan State University

Humanities and Social Sciences

Corresponding Author: mrlvillafuerte@gmail.com

Student organizations provide avenues for students for involvement in social and political concerns. This study explored how students at the Bulacan State University's College of Architecture and Fine Arts (CAFA) are involved in Student Government Elections, and looked into the factors affecting the students' involvement. CAFA was chosen because it is among the colleges with the lowest voter turnout in last year (2017) Student Elections. The findings of the study are intended to benefit the student whether as voter or candidate, as well as the campus in general. From a larger perspective, it should contribute to the importance of developing our youth and their participation in governance processes even outside of the academe. Majority of the respondents were fourth and fifth year students not occupying posts in school organizations. The researchers used stratified sampling to acquire the sample required. In the survey done, the researchers discovered that the involvement of the students in CAFA are from low to moderate level, half of whom do not vote. The study also showed that only half of the students recognized voting as part of their right and responsibility. On the other hand, the factors affecting the students' involvement include frequency of voting, political platforms, social influences, affiliation and interest. CAFA students showed less willingness to be involved in the political platforms of the candidates.

**Key words:** election; factors; politics; voter; voting

## Street-Level Bureaucracy And War On Drugs: How Philippine National Police Officials Perceive Drug Users' Rights

Hannah Gwynneth Y. Pimentel<sup>1\*</sup>

<sup>1</sup>De La Salle University, Humanities and Social Sciences Strand

\*Corresponding Author: hannah\_pimentel@dlsu.edu.ph /  
hannahpimentel888@gmail.com

Michael Lipsky's notion on street-level bureaucracy encapsulates the struggles that the Philippine National Police (PNP) officials face in implementing Philippine President Duterte's campaign against illegal drugs. Street-level bureaucrats are government employees who serve as their direct representatives to the people when implementing the law. Street-level bureaucrats or the PNP in this context, are given discretion in enforcing this relentless campaign that has resulted in several allegations of extrajudicial killings and unaccounted deaths of almost 20,000 Filipinos. Based on interviews and secondary data from newspaper reports, this paper examines the following: (1) the perception of PNP officials towards the social deservingness of drug users on their state-given rights, (2) the personal beliefs of PNP officials on rights and (3) the reasons why their personal beliefs adhere or collide with the rights-based approach of treating drug-related criminals. Results on the PNP's perception on human rights are aligned with the rights-based approach which means that laws ensures rights of every individual even drug users and drug pushers. Personal beliefs show that human rights come from Divine law, social norms and other legal instruments. Though the perceptions are positive, their use of discretion shows the opposite due to managerial threats that the PNP are facing such as threats to be dismissed or killed which is why they choose to actively participate in the extra-judicial killings of alleged drug criminals.

**Key Words:** street-level bureaucracy; war on drugs; Philippine National Police; discretion; human rights perception

## The Perception of Employed Working Millennials on the Imposition of Excise Tax as a Possible Intervention in their Consumption Behavior of Sugar-Sweetened Beverages

Edison B. Anit<sup>1</sup>, Ma. Sophia P. Bawalan<sup>2</sup>

<sup>1</sup>De La Salle University Integrated School - Laguna Campus

<sup>2</sup>De La Salle University Integrated School - Laguna Campus  
ma\_sophia\_bawalan@dlsu.edu.ph

The researchers of this study aimed to determine whether or not the imposition of excise tax on sugar-sweetened beverages (SSBs) could be a possible intervention on the consumption behavior of working millennials. They gathered their data through conducting an online interview and an online survey among employed millennials of different employment categories. A concurrent mixed method and logistic regression were used in assessing the results since these approaches gave the researchers a convenient way of attaining their main objectives. Based on the results of both instruments, the respondents noticed the change in prices of many SSB products. However, on the online interview conducted, most respondents said that the taxation on SSBs was not effective since it did not affect their lifestyle. This could mean that as commodity price increased, the income of workers also increased, leading to their obliviousness of the change in prices of SSBs. Using logistic regression as a method of analyzing the online survey, it was inferred that there was less SSB consumption after the implementation of excise tax. It did not yield any significant predictors, but further examination through a Chi-Square test of independence which showed the relationship between the variables. Meanwhile, for the online interview conducted, it was realized that the monthly income received by the participants affected their own acceptance of the new taxation system on sugar-sweetened beverages. Those who were highly-paid workers, earning an average of P25,001.00 to P35,000.00 monthly, accepted the new taxation more than those with lower income. Thus, the acceptance of the new taxation on SSB products was dependent on the working millennials' income.

**Key Words:** consumption; employment; excise tax; millennials; sugar-sweetened beverages







# **BUSINESS CONCEPTS**



Smith, Kirsten Marie  
Vedar, Mikan Madyleen  
Madrid, Keith Veldran

## EXECUTIVE SUMMARY

Beyond Beauty is a cosmetic reselling business in Santa Rosa, Laguna that offers high-quality and cruelty-free makeup products from different brands based in the United States. The business aims to celebrate the beauty of each individual and promote self-confidence by creating makeup bundles for middle-aged women suited to their unique skin type and personal preference.

Cosmetic products from the United States are difficult to find in the Philippines since many US cosmetic brands fail to seize the opportunity to sell their makeup products in the country. Although many women desire these products, cosmetic companies only accommodate certain regions in the Western hemisphere. This circumstance created a business opportunity, hence, Beyond Beauty was established in January 2015.

Beyond Beauty acquires its products from its middleman in the United States who ships the cosmetic products directly to the Philippines. The management team invested 40,000 pesos as initial capital and was able to generate gross sales of 234,030 pesos from June through December 2018. Moreover, Beyond Beauty anticipates to sell approximately 150,000 pesos worth of makeup products this January and February. Currently, Beyond Beauty has been expanding its market through word of mouth and social media. Based on the performance of the business, the management team projects a double to triple return of investment. In addition, the business plans to diversify the cosmetic brands and lines sold in order to satisfy the expanding demands of consumers.

In the future, Beyond Beauty strives to contribute to society by emphasizing the importance of hygiene to children. In partnership with Tres Marias Dressed Chicken's Housing Project, the business will be able to create a sustainable Corporate Social Responsibility program by teaching the children how to create their own deodorant. This could be a great business opportunity for the community, while still being environmentally friendly.



Jose Maria Victor C. Pascual  
Carlo Miguel C. Galura  
Nathaniel Andrei S. Guevarra  
Brendan Emmanuel A. Miranda  
Dean Miguel V. Saril  
Neal Jairo R. De Mata  
Gian Christian D.G. Tulalian



## EXECUTIVE SUMMARY

Carry One by A-GO is a retail business based in Santa Rosa City, Laguna offering quality products at an affordable price. It was officially established on January 2018 under the name A-GO, meaning “*always on the go*”. Alongside this, the brand name *Carry One* stands for its products, including its three-way backpacks, pouches, drawstring bags, fanny packs, and tote bags. The venture operates under a sole proprietorship with the supervision of the owner, Jose Maria Victor C. Pascual, along with the key personnel: Carlo Miguel C. Galura and Nathaniel Andrei S. Guevarra as the operating managers; Brendan Emmanuel A. Miranda as the marketing manager; Dean Miguel V. Saril and Neal Jairo R. De Mata as the financial managers; and Gian Christian D.G. Tulalian as the human resource manager.

The venture’s mission is to provide products with regard to quality, detail, and customer satisfaction. The business also continuously holds its team to the highest standards; dedicated to safe, ethical, and lawful manufacturing of the products.

Carry One initially invested P20,000 since its launch. It also engaged in social media and direct marketing to raise brand awareness, along with regular updates of its social media platforms. Moreover, business operations consistently exceeded projections, accumulating P104,137 in gross sales and earning P18,944, P11,980, P62,706, and P10,507 in the months of October to January, respectively.

Carry One continually innovates, diversifies, and develops its various product lines. As the venture moves forward, it will expand its operations: widening its reach in the market and gaining more exposure in the local retail scene. The business will also continuously uphold a sense of commitment to its mission and vision and it will continue to operate without losing sight of the importance of its members, customers, the society, and the environment.





Carandang, Ma. Casey L.  
David, Darrel Dawn M.  
Fernandez, Jacklyn Ann Marie I.  
Gallardo, Erin Maxine C.  
Glorioso, Gille Cathleen S.  
Munarriz, Micaela Raziell Therese DG.  
Vidallo, Margarita Ellaine V.

## EXECUTIVE SUMMARY

Chug! Is a business enterprise that aims to lessen single-use plastic item consumption in the Philippines by offering reusable drinking items consisting of mugs, tumblers, and metal straws around the areas of Sta. Rosa, Silang, and Binan. All these undergo management quality standards through the 4Ps process of production namely: purchasing, polishing, printing, and packaging operations.

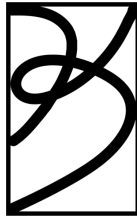
The business was formed in June 2018 by Margarita Ellaine Vidallo as the proprietress, and whose key staff include Ma. Casey Carandang and Erin Maxine Gallardo as Operations Managers; Gille Glorioso and Darrel David as Finance Managers; Raziell Munarriz as Human Resource Manager; and Jacklyn Fernandez as Marketing Manager.

The proprietress and key staff invested Php35,000 in capital for the business startup, and has been able to effectively circulate and generate profit amounting to approximately Php 75,000. Invitational school bazaars and bulk orders are the main sources of income of the business, and has been expanding its market through word of mouth and social media platforms. Currently, the business is experiencing stable growth with over 700 units sold and counting, and has reached a total sales amounted to approximately Php 170,535 as of January 2019. Based on business performance, the management anticipates a triple return of the initial money invested for the next 3 years. As a result, the management is planning to expand its product line to continuously reach market demands through its earned profit and additional external fundings.

In the future, Chug! plans to implement a long-term Corporate Social Responsibility program, first targeting the students and staff of Inchican Elementary School, and later expanding to different schools nationwide. Through this, Chug! wants to spread environmental awareness, starting with the young people of this generation.



**Ian Andre M. Cabañez,  
Darren E. Cabarrubias  
Gabriel Enrico J. Isabelo  
Alexandra Nicole M. Perez  
Michael Ayrton C. Punzalan**



## EXECUTIVE SUMMARY

FORAKOS is a promotional merchandising brand offering apparel products, ranging from shirts, sweaters, hats, and bags with innovative, aesthetic, and trendy designs featuring prevalent causes and social issues to spread awareness in the country. The business aims for corporate and social growth through reaching customer satisfaction together with philanthropic activities, being able to generate societal recognition from the market and society.

Ms. Alexandra Nicole M. Perez founded FORAKOS as a sole proprietor-owned business in the first quarter of 2018 in Biñan, Laguna. Alongside her is the management team, namely Mr. Michael Ayrton C. Punzalan as Operations Manager, Mr. Gabriel Enrico J. Isabelo as Finance Manager, Mr. Ian Andre M. Cabañez as Marketing Manager, and Mr. Darren E. Cabarrubias as Human Resource Manager.

FORAKOS has reached positive outcomes regarding its operational, marketing, and financial aspects. In the operational activities, numerous product collections have been released, launching shirt collections featuring the brand and the causes of awareness. Expanding, product diversification is evident from the supplying of customized shirts to the selling of hats, accessories, and bags. The business uses various strategic marketing methods, mainly engaging adolescents of the new generation. Maintaining its financial progress, from the start-up capital of PHP 30,000, FORAKOS currently garners a PHP 109,020 amount of gross sales. A nearly doubling increase on financial projections, continuous circulation of funds and expansion on production activities are anticipated.

In the course of its success directed in amplifying change, FORAKOS extended on charitable programs, such as monetary donations and clothing drives for its partner beneficiary, Angel Hope Foundation, a non-government organization for orphans.

Attuned to its mission, FORAKOS is not just a brand. The business aims on tackling more prevalent issues to be raised as awareness, accompanied by eleemosynary actions that extends welfare for the benefit of the society.





**Carpaena, Andrea Regina M.  
Delmo, Veronica Marielle F.  
Fabro, Ysabela D.  
Llantino, Nuella Mari D.**

## **EXECUTIVE SUMMARY**

The Little Green Box offers succulents and cacti since people are now living in a fast-paced life with a cavalier relationship with nature. Hence, we wanted to reinvent the way people live by re-introducing nature to them through these products. The business was formed on February 2018 in Laguna. Through social media, it is able to market the products effectively while providing a sustainable future for the next generation.

The business aims to inspire, to involve, and to implement solutions that can solve the environmental problems while maintaining the growth of the employees composed of five key members, namely the general manager who oversees the whole business, the financial manager who ensures no loss in the business, the operations manager who ensures a smooth and efficient procedure of the preparation of the products, the marketing manager who develops marketing strategies, and the human resource manager who maintains the productivity within the company.

The market had proved the profitability of the business. The sales of The Little Green Box from September to December amounted to almost Php 100,000 and has reached 200% on its Return on Investment with the starting capital Php 20,000. The projection for 2019 is worth Php 192,000, Php 212,000 in 2020, and Php 234,000 in 2021.

The business aims to reach Php 100,000 in sales by February 28, 2019. The business was also able to conduct a program to Children's Joy Foundation Inc., an orphanage in Canlubang, Laguna. The future plans of the business is to propagate its own succulents and cacti and open a physical store once there are enough funds. The business also plans to have additional services such as landscaping. The Little Green Box will then continue to innovate from time to time to adhere to the fast-paced economy and needs of the market.



**Jenrico Cruz  
Gerico Ador,  
Marwin Cruz  
Mark Salvador  
Kyle Melendrez  
Kenneth Durana  
Anthony Ocampo**



## **EXECUTIVE SUMMARY**

MemoWrist is a progressive and innovative business that provides people convenience in data storing through wearable technology. Conceptualized in February 2018 at Biñan, Laguna, the small sole proprietorship business is owned by Jenrico Cruz, along with various departments, namely: Operations, headed by Gerico Ador, Marketing headed by Marwin Cruz Finance headed by Mark Salvador, Human Resource headed by Kyle Melendrez, Purchasing headed by Kenneth Durana and lastly, Quality Control headed by Anthony Ocampo. Their diversified product line ranges from bracelets that double-function as either a flash drive, or a smartphone charger cord, to uniquely designed Bluetooth earphones, power banks, on-the-go adapters, and customizable ID card type flash drives.

With just an initial investment of Php 20,000, MemoWrist has already accumulated sales amounting to Php 105,400—which is approximately 44% net profit margin in December 2018. Comparing the actual sales to the projected sales of Php 300,000 for its first year, the former is already about one-thirds of the latter in just after three months of operations. If MemoWrist were to continue operating at this pace, the gross sales projection for the first year will be updated to Php 350,000.

MemoWrist's first supplier was Innogen Concepts Enterprise, but now they have the equipment necessary for packaging. Alongside this efficiency in terms of operation, comes their aggressive marketing. They maintain customer loyalty and satisfaction by utilizing marketing tools such as trailer commercials, posters, and photographs posted in social media, and creating programs that will help the community, such as providing educational help to Imus National High School students. With this, the goal is to become the exclusive wearable USB brand that excels in leading with innovation while redesigning fashionable technology that is one step ahead into the future.





Uriel Bañez  
 Kyle Co  
 Ezer Francisco  
 Miguel Gamboa  
 Sean Maravilla  
 Carlos Tan

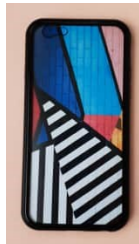
## EXECUTIVE SUMMARY

Art is a part of our journey while incorporating utility that improves the quality of life; this mindset fuels the ambition of ScribeCase. The business takes advantage of the opportunity within the growing smartphone market via quality printing, environmentally-friendly options, and an outlet for customer expression on the product. By providing custom printouts based on their preferences, ScribeCase aims to innovate in its market.

ScribeCase began on January 2018 in Biñan, Laguna with P20,000 as initial capital. The business comprises these members: Carlos Tan as the owner, Kyle Co leading operations, Ezer Francisco handling marketing, Sean Maravilla supervising human resources, Uriel Bañez operating finances, and Miguel Gamboa as the Internal Auditor. Interest in customizable phone cases and awareness for the need for expression, ScribeCase came to fruition. The business offers shock-proof cases which can be customized based on preferences via printing or heat-press. After diversification, ScribeCase added other cases to its selection, ScribeCase opened its roster to accessories to provide further utility to phone cases. The business also offers powerbanks: slim and regular.

The business expanded to suppliers within and outside of the Philippines via Shopee. ScribeCase relies on word-of-mouth and online marketing. ScribeCase underwent a learning phase during September and after adjustments, the business shifted to order-basis. The sales for ScribeCase are ₱2,513, ₱15,010, ₱16,900, ₱10,650 and P1,407 for September, October, November, December, and January, respectively.

If the business venture reaches sufficient sales, we will focus on expanding to the rest of CALABARZON, as well as improve on product quality, product lines, and funds for beneficiaries. However, if sales are insufficient, the business will identify the weaknesses that need revision to improve. After operations, running the business taught us flexibility, decisiveness, and initiative skills that apply to future endeavors, both business and non-business.





**Camarillo, Bryan Daniel B.**  
**Lazo, Ma. Bianca N.**  
**Santos, Gabrielle Allen A.**  
**Sy, Karla Mae U**

## **EXECUTIVE SUMMARY**

Students nowadays normally prefer using a small bag along with a file organizer that can fit their paperworks and some necessities and some even opt to use just an organizer alone. Based on a survey conducted by the entrepreneurs, majority of the respondents state that they would most likely purchase a file case that can fit their essentials instead of a wallet or coin purse. The researchers gathered information with regard to existing file cases in the market and by doing so, they were able to determine different possible ways to make their product unique from all their competitors.

After a series of information gathering and surveys, Briallela Corporation decided to create a innovatively designed file case namely “Vidulum” (latin word for wallet or pouch). The product is made out of different raw materials such as synthetic leather for the outside and nylon for the inside. It is 9in x 12in in size and includes multiple pockets designed for different functionalities, the pockets are formed in small and medium sizes where one can store their papers, documents, fillers, calculator, iPad, and an eleven-inch laptop at most. There is also a zipper for coins and bills, and lastly there are bands placed on the left side of the case wherein the user can put pens and attach gadget cords. With this product, the entrepreneurs are looking forward to satisfy the needs of consumers for a more convenient days in school.





Chua, Jon Stuart  
Supera, Christian Jansen  
Toong, Frances Anne  
Uy, Godwin Lance  
Uy, Jon Calvin

## EXECUTIVE SUMMARY

### A. Venture History

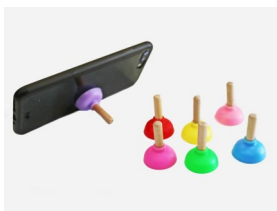
GADGET GALAXY CORP began in September of 2018 where the business first started its operations and the selling of its products. As the generation of millennials come, usage of gadgets become necessary alongside with the usage of gadget accessories. In line with this, the business was developed in order to significantly help the people in maximizing the potential of their gadgets and attaining convenience in using these gadgets. With this in mind, the business entrepreneurs thought of providing gadget accessories that aims to help the people use their gadgets in the most convenient way as well as having confidence of their gadget accessories because of its efficiency, design, quality, and affordability.

### B. Venture Description

GADGET GALAXY CORP is entering a merchandising business in the gadget accessories industry which is reported to increase its sales every year in-line with new innovations and the increase in the market population. As the business is just starting its wondrous adventure, the business made sure that it will stand out from its competitors and be able to provide the best accessory gadgets that the target market would love. The business had three gadget accessories: webcam covers, plunger stands, and mobile phone wallets. Not just ordinary gadget accessories but accessories that are affordable, easy to use, effective, durable and aesthetically pleasing.

### C. Venture Market

The market the business is targeting are the students of the De La Salle University especially the College students. Another market are the people who just wants to buy the



**Cousart, Raymond Emmanuel G.  
Maragañas, Don Third I.  
Quevada, Riza S.  
Yu, Regina Mae C .**



## **EXECUTIVE SUMMARY**

Minima Inc. is a startup business founded by four De La Salle University Integrated School students, Raymond Emmanuel G. Cousart, Don Third I. Maraganas, Riza S. Quevada, and Regina Mae C. Yu. The corporation is built on core philosophy of minimalism and how this can be used to achieve the company’s primary goal of providing students and professionals a method of organizing their daily activities through the usage of the company’s main product, the Tenfold Padfolio. To finance Minima Inc., the incorporators invested Php 19, 500 each or Php 78, 000 in total. In the production phase of the product, the management team has secured a supplier from China, Beijing Fuyuanhengtai Technology, Ltd., who agreed to supply an initial order of 150 pieces of Tenfold Padfolios, with colors of red, blue, and black, to Minima Inc. for Php 519 each. As such, the Tenfold Padfolio is currently being sold at Php 599 in order to ensure that the product is affordable and profitable. In selling the product, Minima Inc. has used various distribution channels, such as a kiosk situated in De La Salle University, and has formulated promos, such as a Php 50 discount in the first ABM Bazaar, to establish a connection between the company and the target market. Minima Inc. is forecasted to sell all the 150 pieces of Tenfold Padfolios in four months, and accumulate projected sales of Php 247, 500 in the first year and Php 292, 050 in the succeeding year. The company is performing well with respect to this goal, as stocks are already depleting since it started operations in November. Furthermore, plans to improve on the design and functionality of the Tenfold Padfolio are being conceptualized, but the management team has decided to cease business operations by the end of the academic year.





**Alcaraz, Lorian Aliana P.  
Antonio, Immanuel C.  
De Guzman, Katarina Ysabel H.  
Faustino, Danikka Faith D.**

## **EXECUTIVE SUMMARY**

Notepal is a retail company that sells multipurpose notebook that is filled with innovative features and is competitively priced. The product was created with the idea of creating an easier and more productive life for students in school. Driven by the growth of the stationery industry, the company will cater to the increasing population receiving education and youth going to school who are in need of notebooks and products alike. The mission and objective of the company is to offer a product that is innovative and at the same time is simple and priced reasonably. The product made is a multipurpose notebook that has paper compartments and card and bill pockets. It comes with a pencil case attached to it where one can place his or her pens, correction tapes, and other objects. The papers are also of good quality and are attached to the notebook by a metal binder. Aside from its functionality, it is also stylish, durable, and practical which can be bought at a reasonable price. As for the proprietary rights, the business created a logo for the product in order to establish the brand and prevent cases of others using the product and branding it as their own. The company puts emphasis on marketing its products online as it will reach a large number of target customers, the youth who are always online, eventually making them customers. Notepal envisions to become a top notebook provider that offers its products not only for students but offices too. The company is under a partnership that consists of four members that have equal authority and decision-making power. Notepal started business operations inside a school campus last year. Since then, the company has generated sales that are used to pay off expenses. The company plans to offer more of products in the future, as it only features one type, that are in-line with the industry.





## PARALUMAN CO.

### EXECUTIVE SUMMARY

With the number of pressing issues in the society today, arises an urgent need to take initiative and make a stand. The founders of Paraluman Co., a startup partnership business managed by a group of Senior High School students of De La Salle University - Manila, see beneath these issues an opportunity to be pro-active members of the society. It is the company's mission to create a ripple effect in the community by offering advocacy shirts in the market. The advocacies being promoted by the company include women empowerment, LGBTQIA+, environmental conservation, mental health awareness, and patriotism. Following the meaning of Paraluman, the all-female company aims to be muses who inspire artistically. With this, it was carefully planned and decided that Paraluman Co. will be using the silkscreen printing method in designing the shirts. This method will enable the founders to produce the shirts themselves and efficiently use their time and resources.

Paraluman Co. will be following a top-down approach in implementing policies and executing business operations. The company will also be divided into four departments: marketing, strategic operations, finance, and human resources to ensure an organized flow of commands. Moreover, these divisions work hand-in-hand in producing quality products and ultimately, creating a ripple effect. Moving towards its mission, the company plans to pledge a percentage of its quarterly sales to organizations that support the same advocacies; The Initiative PH and Hands on Manila Foundation, Inc. are the prospect beneficiaries of the company as they promote youth volunteerism and break unjust social constructs. As the company progresses, it aims for its business model canvas to be vertically coherent with its mission model canvas —giving more emphasis to achieving social mission. Paraluman Co. plans to partner with organizations that could aid with the production of shirts in the future; this can be a way for youth volunteers to take part in creating social impact. Overall, through the company's products, Paraluman Co. envisions a society in which people spread awareness and become catalysts of change.





**Cloma, Charisse Marian G.  
Cregencia, Chelsea Denise T.  
Miranda, Lois Dashamarie Y.  
Ranola, Joy Bianca S.**

## **EXECUTIVE SUMMARY**

Established by a partnership of 4, Purse-y-Phone is a start-up leather wallet business that caters to the Lasallian community in Manila. The key personnel are all Grade 12 ABM students at the De La Salle University, namely Chelsea Cregencia, Charisse Cloma, Lois Miranda, and Joy Ranola. Through their education, they have learned effective strategies in starting and running a business.

The team's focus is to provide a built-in compartment for your phone in the wallet, thereby differing from a conventional wallet. The wallet is our main selling point, that is, through providing practicality and convenience to the customers.

Purse-y-Phone upholds its vision of being a leather wallet business offering functional wallets that provide convenience by having a phone compartment. We position ourselves as a Filipino wallet brand that is reasonably-priced and practical. With this, the intended customers of Purse-y-Phone are female DLSU students. Thus, a digital marketing plan is utilized to attract them as they spend most of their time in social media.

The company used an estimated total of 50,000 pesos in which each partner equally gave 12,500 pesos. 44,000 pesos were used for the product development, 2,500 pesos for the packaging, and 3,500 pesos for marketing and operations. We divided 3,500 by 100 to be able to fully account our expenses for the pricing of each wallet. In total, each wallet will cost 450 and 470 pesos each. Having said this, each wallet will be sold at a price of 549 and 569 pesos. We aim to sell at least 100 wallets to give us a gross profit of 9,900 pesos. Given the forecasted gross profit, each partner will receive 2,475 pesos.



**Siete, Andrea E.**  
**Siy, Janine Caitlin C.**  
**Teñoso, Feliza Rasine M.**  
**Viernes, Christine Mel C.**

## EXECUTIVE SUMMARY

Snap&Go was founded last March 2018. The start-up company was formed by four students from De La Salle University, namely Andrea Siete, Janine Caitlin Siy, Feliza Rasine Tenoso, and Christine Mel Viernes. The company name ‘Snap&Go’ was obtained from the group’s main objective which is to create innovative products that will allow consumers to deal with their everyday tasks within a snap of a finger. In the process of creating their first product, the members decided to focus on meeting the needs of Filipino commuters. The group recognized that the market of commuters in the Philippines is large, and that a lot of commuters are unsatisfied with their current condition because of the poor public transportation system. With this, the group got the idea that they could try to reduce the inconvenience caused by commuting by creating a wallet that will serve as a commuting companion for Filipinos. Fortunately, one member also has close family relations to a company that produces leather goods which only strengthened the group’s conviction to enter the leather industry. After continuous revisions with the design, features, and product name, Snap&Go is proud to reveal their first product: the P-taka, a combination of the words ‘Pinoy’ and ‘pitaka’. P-taka is a unique wallet that caters to the needs of Filipino commuters through its several features. The wallet is designed with a dog hook, a key holder, two card slots, a bill holder, and a transparent slot that can be used as a Beep card holder or a coin purse. All of the mentioned features are expected to make it easier for commuters to access their daily commuting needs such as coins, bills, or beep card. The product will also be available in several colors to ensure that every user can find a p-taka that suits his or her personal taste.





**Chen, Michelle Ann L.  
Lao, Patricia Hillary R.  
Regala, Christine Venice E.  
Yu, Patricia M.**

## **EXECUTIVE SUMMARY**

Like many other apparel and footwear industry in the Philippines, hosiery continued to benefit from the trend. Specifically, this trend bolstered demand for long, ankle, and even knee-length socks. Moreover, fashionable innovative designs are now increasingly favored over classic alternatives. According to Euromonitor International (2018), a number of lifestyle trends continued to spark consumer interest in hosiery in 2017. Over the forecasted period, the trend towards more active lifestyles resulted in many Filipinos wearing closed footwear such as rubber shoes and sneakers more often, which in turn helped in strengthening the demand for socks. Clothes Encounter, a start-up company that aims to establish a business that sells innovative products to satisfy customer needs, has introduced Sock&Pock.

Sock&Pock is a business venture that provides quality socks with pockets to customers in Metro Manila. The supplier and manufacturer of the socks is Burlington Industries Philippines Inc., a well-known manufacturing company in the Philippines.

The start-up capital is P32,000; each partner invested an equal amount of P8,000. Since the estimated units to be sold are 300 units throughout the duration of the business, each partner estimates a return of P4,875, exclusive of the initial investment. The business is forecasted to be successful, since according to the surveys conducted by the researchers, there is a potential demand of 95 socks per month in the target market, which is senior high and college students from De La Salle University - Manila Campus.

The type of ownership of the business is a partnership wherein all partners share unlimited liability. In the event that after liquidation, there is a net loss, all partners share the same amount of loss, no matter the position in the company. To introduce the paper, the company name, mission and vision statements, and the objectives of the company will be briefly explained.





**Hong, Albert G.**  
**Limsico, Anne Margareth G.**  
**Tia, Charlene V.**  
**Yap, Daniel Jed P**



## **EXECUTIVE SUMMARY**

“sTHYLLe Apparel” is a clothing company founded by four entrepreneurs to answer the need of providing clothing products to university students. The founders of sTHYLLe Apparel will also be functioning as the managers of the company. Anne Limsico is the chairwoman of the company and is in charge of making the major decisions for the company. Albert Hong is the financial manager and is the one responsible for taking care of the financial aspect of sTHYLLe. Daniel Yap, the operations manager, will be overlooking all the operations of the company as well as the inventory. Lastly, Charlene Tia is the assigned marketing manager and will be handling all matters involving advertising.

The business aims to provide comfortable, affordable and stylish products to university students who have trouble in deciding on their outfits everyday. For simplicity, the company’s first product line will be comprised of basic ringer tees that comes in grey and white with black lining, and track pants that come in white-yellow and white-red stripes. The target market of the company are university students and Generation Z for they have no prescribed uniforms. Revenue will be largely generated by joining various bazaars and through online shopping platforms. In order to attract the target market, promotions will be posted on social media pages.

With regards to finances, the company will be following a fiscal year in which financial statements will be made every June 21. Majority of sTHYLLe’s starting capital will be coming from investments of its partners amounting to a total of Php 100,000. This capital will mainly be used for the production of the clothes and is also enough to cover other expenses such as delivery fees, packaging, supplies and others.





*"To give back and to give more"*

**Alido, Luis Gabriel L.  
Casanova, Gabriel Francisco D.  
Ganzon, Maxine Aira Coleene G.  
Garcia, Angela Chrystelle S.  
Monteriro, Raven Joseph Keith P**

## EXECUTIVE SUMMARY

Amore is a social enterprise that believes in giving back to communities. They believe in a world wherein you could create something functional and appealing from materials unused or unwanted. As a business, they also aspire to overcome challenges that revolve around their creativity and aim to reach their potential.

'Care case' is Amore's flagship product. It is a pouch made from eco-friendly materials. The need for gadget protection products is becoming in demand since almost everyone owns gadgets nowadays. Amore's 'care cases' aim to meet the trends of their market, which are the young gadget-users. The 'care cases' will be sold at ₱350, which is considerably low than the common prices of gadget protection products. The expected profit for the first year is ₱186,513.30. These cases will utilize direct distribution through e-commerce.

In addition, Amore also aims to target the environmentally-conscious consumers, since the 'care cases' makes use of recyclable clothing as their main material. It will not only contribute to alleviating environmental problems in terms of textile waste but will also attract consumers who support sustainable causes such as this.

Amore strives to give back to their partner community by providing a portion of their profit to the livelihood program entitled "Tatak Citta Livelihood Project" through training the women and out-of-school youths of Citta Bukid: a socio-economically challenged community located in Bacoor, Cavite. Besides the partner community, another beneficiary of the business are the women of Lipa City, Batangas, who are the manufacturers of the 'care cases'.



Rooted in Lasallian education, Amore's proponents envision to lead a society where young dynamic entrepreneurs combine economic activity with social responsibility. As aspirants of excellence, business leaders of the future, and makers of change, the people behind Amore will continue to bring innovation while reaching out to more communities.

**Benedicto, Stephanie F.**  
**Cabiles, Jacel Aivry B.**  
**Empeño, Edgar Desher P.**  
**Mendoza, Rhenne Angelica J.**  
**Ramos, Raphael Manuel P.**  
**Siy, Christine Joane O.**



## EXECUTIVE SUMMARY

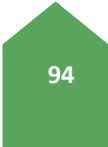
Ecostoria was built with three foundations in mind: to be pro-people, pro-environment, and pro-education. Inspired by the current and drastic changes in today's world in terms of sustainability, Ecostoria introduces its first product named Bagliktaran. Penned from the Filipino word "Baliklad" and "Bag", the Bagliktaran is a 2-in-1 reversible and customizable bag.

Ecostoria aims to reach its target market which are millennials and Generation Z by using social media sites and utilizing Post Boosters while selling it through Google Forms. In the future, distribution channels would include our own website and delivery. The promotional materials will help spread awareness on Ecostoria's advocacies, such as environmentally sustainable future and pride in buying locally-made products. Attributes such as aesthetic, style and comfort of the bag are essential to Ecostoria. The Bagliktaran will be sold by Ecostoria at the price of P300. With an average sales of 45 bags per month, the company expects a profit of P112,818 in its first year of operation.

It is common in today's market to simply buy without thinking of the repercussions a certain product has towards the environment. "Efficiently and environmentally changing the narrative," is what Ecostoria stands for. The problem does not only comprise of the lack of information given to the general public, but also lack of affordable products for the masses to buy. It is their aim to sell the product at an affordable price and to partner with a community of able mothers in Citta Bukid Bacoor, Cavite. The proponents will train them to make the product as well as contribute to their financial capital through the Tatak Citta Livelihood Project.

As young Lasallian entrepreneurs, Ecostoria aims to promote environmental sustainability whilst showcasing the Lasallian core value of concern for the society by providing a livelihood for socio-economically challenged communities.







# CREATIVE OUTPUTS

## **A Healing Art: Assemblage of Therapeutic Dance Choreography Experiences of Adolescents as Catharsis to Primary Emotions**

**Abigail P. Macatangay**

The dances were based on the basic dance movements of choreography that expressed the primary emotions: happiness, sadness, fear, and anger of the Laban Movement Analysis. Originally made by Rodulf Laban in 1947, the Laban Movement Analysis is a theoretical and experiential system for the observation, description, prescription, performance, and interpretation of human movement. It answers the how, what, where, and why of movements. The creative output will be focusing on creating dance choreographies to increase well-being and to create steps to make dance therapy more effective based on the Laban Movement Theory. The researcher chose dance as a medium for therapy because the body can be the key to unlocking profound levels of healing. According to Cruz, Koch, Lykou (2013), it is one of the most ancient forms of healing and as stated by Leman (2014), an interesting type of full body movement, is dance, in particular with regard to emotion research, which is one of the oldest forms of cultural expressions. The researcher will choreograph four dance routines that will express happiness, sadness, fear, and anger because these four emotions are the primary emotions according to Davies (2017). Grounded on several theories, music strengthens the emotion of dance and helps the audience to comprehend the connotation of dance, makes the dancers' emotional expression to be more easily accepted. The researcher also used different songs that will complement the emotion being portrayed by the performer. It was also stated that music and dance are inseparable and destined to be artistic twins from their birth. The songs used for the emotions are Supermarket Flowers (Sadness), Maksim Mojito (Happiness), Dark Angry Strings Piano (Fear), and Zoku Japanese Kodo Drums (Anger). After doing the choreography that expressed the primary emotions, the study focused on a narrative perspective on the researcher's experiences on the dance movements and feelings solely.

## **The Kundiman: An Extended Play of Filipino Sentiments Embodied in Song**

**Yñigo Eduardo H. Ferraz**

Six kundiman songs will form this extended play with lyrics featuring forlorn pleadings and longings of a typical Filipino in love. The structure of the songs remain in their traditional form but are enhanced with modern production and lyrics. Following the formal structure of  $\frac{3}{4}$  time signature, minor key in the first verse, and parallel major key in the second verse, it exempts downbeats, but subtly syncopates the second beat, and typically utilizes a rhythmic pattern of consecutive eighth notes, making the melody float, glide, and flow over the beats. The lyrics, however, will no longer use archaic Filipino words in order to further relate to the modern generation.

## **Hanggang sa Muli**

**Raffy R. Magpali, Jr.**  
Written and Directed by

**Jyandelf Gaddi**  
**Annaliza Estrera**  
**Trisha Mae Nuyles**  
**Justine Ornido, Armand Petilla**  
**Jolina Pampag**  
**Mark Philip Aquino**  
Artists

“Hanggang sa Muli” is a short film created specifically for the 1st Cine Diwa: Philosophy Film Festival, a film contest project initiated by the Humanities and Social Sciences (HUMSS) Department of Malinta National High School-Senior High. The aims of the contest were the following:

- For students to creatively show their philosophical reflections in life through a short film, in line with the topics discussed in the subject “Introduction to the Philosophy of the Human Person” such as freedom, intersubjectivity and views on death;
- To raise awareness and to start discussion about real-life experiences and challenges the youth/young students encounter about their buhay senior high;
- To explore creativity across a broad range of disciplines as explored by senior high school subjects, such as Media and Information Literacy, Contemporary Arts in the Regions, Empowerment Technologies, Humanities and Social Sciences subjects, etc.

Through this film, the group explored the idea of self-assessment about one’s life, most especially during difficult times. “Hanggang sa Muli” tried to capture all things people deemed as truly valuable when death comes: love shared with family members, bonds created with friends. These are the most precious gifts that make life to be most meaningful.



## **Reintroducing Aliguyon Using Vogler's Adaption of the Monomyth Through a Game Development Descendants of the Sky: Song of Aliguyon**

**Trisha Marie S. Cajita  
Dana Isabelle P. Campos  
Gabrielle Z. Villapando**

This artwork is a video game which will be a third person 16-bit RPG. It will be made with RPG Maker MV. Its objective is to reintroduce a Philippine Folk Epic, which is the reason why it will be based on Hudhud hi Aliguyon. The player will control Aliguyon, the son of Amtalao and Dumulao, who is brave and courageous. He acts as the leader in Hannanga, and he embodies a lot of his people's ideals and aspirations. He still has human flaws however. He can be disrespectful and impatient, which is seen with how he treats Dumulao in Act 1. The narrative of the game will be based on the story of Hudhud hi Aliguyon which will be written following Vogler's adaptation of the monomyth. It also incorporates the values, unique culture, and ideals identified in the epic to have a more authentic narrative. The narrative will open in the first stage of Act 1, Ordinary World, which is set in Hannanga, the village where Aliguyon lives. It will end in the middle of Act 2 to make the story more gripping. More characters will be introduced such as Dumulao, Pumbakhayon, and some of his comrades to give the story more life and dialogue. These characters will be created based on the culture, value, and ideals that found, because they will assist in making the world in the video game be more cohesive and comprehensive to the player. These components will be combined to create a game demo which will only reach up to the stage Crossing the Threshold. It will act as a sample of a game to generate interest in it.

## **Connected Actions, Collective Visions: Converging the Healing Influences and Traditions of Ilocandia in Questing Allegiance for Cultural Diversity**

**Ephraim R. Sareno  
Thursten Kaye S. Sabandal  
Jerwin G. Javillonar  
Florie Jane Congao**

In the most ravishing way of fledging the wide-eyed view for concepts and mysteries that presently illuminates the darkness beyond our minds, we are highly determined to display the colourful propositions that makes a significant difference between fallacy and factuality— traditions. It is well-stated as an irreplaceable cultural norm that our society primary need as the world unceasingly generate its own metamorphosis. In order to fulfil the quality of being identified as one culture, they must possess a significant symbolism that will carry their burning hearts into the triumph of being recognized as diverse by which the research study focused on. Specified objective are listed below.

1. To reconceptualise the vision of people to reintegrate the fading culture of Ilocano. Most common researches are conducted by the professionals are mostly built by the strong mindset of people to seek for significant answers that acts as a key to another worldly milestone. In contrary, our brotherhood disremembers how this development was given birth. And as the technology is visualized, interpreted and defined properly by the adventurous minds of the people, the deep realization that their minds were once inhabited with the natural and traditional visions. Go and look how the world must look like without being culturally-uprooted. Walk within the vestibules, smell the unique vibes of its whistling wind—it will make you think about the mysticism that is veiled in every aspect of the land of diversity—Ilocandia.

2. For the localities to be familiarized about Ilocanos' solemn and diverse ethics in terms of healing practices. Ilocanos are well-known for have a large ethno-linguistic group wherein diverse cultures are still being practiced by our elderlies. The native are tranquil on implementing the old method of living—the ways of worshiping different god/goddesses, presenting exotic dishes, showcasing various festives and gatherings, especially with the process of seeking the cure for a certain disease or illness in by which science still contradicts their ideas. Healing is extensive word to express; we are very familiar that healing has something to do with medications and utilization of synthetics drugs. With the great contribution of technology and earthly innovations, the unconventional and traditional method of treatment are being misunderstood by many. The relative remark of yesterday should also be considered, on how this native practices would maximize our inner hope and faith—faith that would unchain any type of dilemma, particularly diseases.

3. To introduce the assortment and distinctive characteristics of Ilocanos' traditional healing. Various beliefs and performances of Ilocanos includes hilot, panagrukod, and panagtandok that absolutely gives a strong assumption that northern people has also something to offer. The umili (citizens, particularly of the Ilocos Sur) still recognizes the authority of Apo Baket, Apo Lakay, Tatang, Inang (common names of native healing that employs the technique which uses unfamiliar herbs, parts of an animal, unseen spirits and elements and fortunes to indicate a person's health and help them to overcome it). The down side is, they aren't able to go in public and execute their own way of helping and saving a person's life. Though, there's no justification and enough basis about the how all these work, the ability to heal externally and mentally is something beyond the border. This study aims to deliberate multiplicity edges and harbour the cultural differences and understanding that builds that Philippines as one nation and as a thousand islands of diversity and competence .

































