DLSU RESEARCH CONGRESS 2019

"Knowledge Building towards Industry 4.0"

June 19-21, 2019

MESSAGE

Br. Raymundo B. Suplido FSC, Ph.D.
President
De La Salle University

Dear Lasallians and Friends,

We are living in a world today that, even a decade ago, would have been considered the realm of science fiction. We are witnessing greater and even more rapid changes in artificial intelligence, data science, manufacturing, logistics, machine learning, and the Internet of Things, to name a few. IT is becoming indispensable in scientific research, engineering, governance, commerce, and day-to-day living.

These technologies and developments, collectively, are engendering disruptions and accelerating changes far greater than the steam engine during the first industrial revolution, the introduction of mass production during the second, and semiconductors and the personal computer during the third industrial revolution.

In this context, I hope that that the 2019 Lasallian Research Congress will serve as an avenue for our DLSU faculty, students, and guests to showcase the latest research initiatives and innovations in the field of the sciences, engineering, computer sciences, social sciences, business, and the humanities.

But even as the Industrial Revolution 4.0 will bring about even more dramatic scientific, social and economic changes it will also raise philosophical and ethical questions. In the drive for greater automation, what becomes of displaced human labor? How much of our privacy will be protected from individuals and organizations with their political and commercial interests? How do we integrate our principles and ideals with the ever-increasing drive towards material progress and economic prosperity?

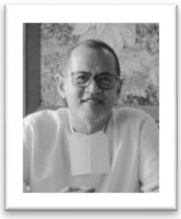
As Lasallians, we are committed to ensure that our efforts in knowledge generation must always be guided by the principles of justice, integrity, and environmental protection and sustainability. Do we seriously consider the social impact of the new knowledge, interventions, or inventions that we discover? Will they enable more members of Philippine society to become productive, find purpose, and attain happiness?

With the theme of "Knowledge Building Towards Industry 4.0," the DLSU Research Congress will indeed be an opportunity to share knowledge, develop new partnerships and linkages. I hope, it will also deepen our commitment to humanitarian principles as well as environmental advocacy.

May this gathering be a productive and meaningful occasion for all the participants, and may you all deepen your commitment to serve as the resource so badly needed by our country and our Church.

Welcome to the 2019 DLSU Research Congress!

MESSAGE



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

My warm congratulatory greetings to the Office of the Vice Chancellor for Research and Innovation and its partners for organizing the 2019 DLSU Congress. I also take this opportunity to thank and welcome our esteemed paper presenters and participants to this annual gathering of faculty researchers and students.

For several years, this Congress had provided a venue for faculty members and students from diverse disciplines to present their research, exchange valuable insights on timely topics, and foster intellectual pursuit.

This year's Congress is anchored on a very timely and relevant theme. Humanity has come a long way from the introduction of factories that were powered by steam and water during the First Industrial Revolution in 1765, to the application of scientific methods and electricity for mass production that ushered in the Second Industrial Revolution in 1870, to the automation and digitization that saw the rise of the Third Industrial Revolution in 1969.

Today we are gearing toward the Fourth Industrial Revolution of Industry 4.0 that was ushered in by the introduction of the Internet. It is a period characterized by the confluence of digital, biological and physical innovations, and emerging technologies. Although Industry 4.0 is expected to create a wide array of opportunities as it brings about tectonic shifts in the socio-economic milieu with changes in the way businesses operate and how people live, it has its accompanying challenges and threats.

As advocates of the scholarly pursuit in our respective institutions, we can make significant contributions to knowledge building toward Industry 4.0. Society looks up to us as its vanguards. It expects us to provide new knowledge and dynamic and adaptive responses to the disruptions that may be caused by the rapid digital transformation and innovations that are taking place in our time.

As this Congress endeavors to highlight the vital role of university research in responding to various aspects of the Fourth Industrial Revolution, I would like to thank everyone for engaging in this pursuit. I wish everyone an intellectually stimulating exchange.

MESSAGE

Dr. Merlin Teodosia C. Suarez
Vice Chancellor for Academics
De La Salle University

Congratulations to the participants and organizers of the 2019 DLSU Research Congress! This year's theme brings together researchers working towards creation of knowledge to prepare the country for Industry 4.0. Industry 4.0 presents opportunities for a developing country like the Philippines to leapfrog as a knowledge-based economy as universities lead in conducting research to solve unique and complex societal problems.

Among the most important skills for the 21st century work place is creative problem-solving, teamwork, and communication, the same skills a researcher possesses. DLSU, as a learner-centered and research university, is in a perfect position to create the learning environment to develop these skills in its students. With its 2018 RevEd curriculum, students are trained to interdisciplinary thinking, effective functioning in multi-cultural environments and inclusivity. The University's strong and extensive research environment embraces curious students guided by mentors to successful research projects.

The best teachers to prepare students for Industry 4.0 are researchers, as researchers excel in creative problem-solving, work in teams, and share their knowledge within their own teams, the scientific community, and the general public. Now more than ever, there is an integration of research and teaching. Because of this, knowledge building should happen in the universities, with students mentored by teacher-researchers. DLSU is committed to this mission.

I wish everyone a successful conference, and congratulations to the organizers of the 2019 DLSU Research Congress.

MESSAGE

Dr. Raymond Girard R. Tan
Vice Chancellor for Research and Innovation
De La Salle University

The Research Congress is one of the cornerstone annual events at De La Salle University. This conference underscores our institutional commitment to the creation and dissemination of new knowledge across a broad range of disciplines, and features invited lectures, oral and poster paper presentations, topical workshops, panel discussions, and student competitions. The event also provides the Lasallian community an opportunity to reach out to a broader audience by opening our campus doors to conference participants from other institutions.

The theme of this year's Research Congress is *Knowledge Building Towards Industry 4.0*. We seek to address the much-discussed, but perhaps poorly understood, Fourth Industrial Revolution, as brought about by different enabling technologies just over the horizon. On the one hand, there seems to be plenty of anxiety about the potential threats and dangers; on the other hand, as with previous technological revolutions, there may be key opportunities that Filipino researchers can take advantage of if we're smart about how we approach the issue. There are many uncertainties which can only be addressed by open discussion in an academic setting.

I want to thank and congratulate 2019 Research Congress organizing committee, led by Dr. Kathleen Aviso and Dr. Joel Ilao, supported by the college Assistant Deans for Research and Advanced Studies (ADRAS), as well as the staff of OVRI and URCO. Their hard work through months of preparation have served to endure a successful conference. On behalf of DLSU, I would also like to extend my gratitude to the Department of Science and Technology's Philippine Council for Industry, Energy and Emerging Technology Research and Development (DOST-PCIEERD) for covering part of our expenses. Finally, I wish all the participants of the 2019 Research Congress an intellectually stimulating experience during the coming days.

| PROGRAM

PROGRAM OF ACTIVITIES

19 June 2019, Wednesday		
8:00-8:30	Registration	HSSH 5/F
8:30-9:00	Ribbon Cutting Opening of Exhibits and Poster Viewing	
9:00-9:15	OPENING CEREMONIES (Master of Ceremonies: Reynaldo Bautista and Moireen Espinosa) Prayer National Anthem [DLSU Chorale] Opening Remarks [Br. Raymundo B. Suplido FSC, President, DLSU] Welcome Remarks [Dr. Raymond Girard R. Tan, Vice Chancellor for Research and Innovation, DLSU]	
9:15-10:00	KEYNOTE LECTURE *Mainstreamed AI and the Industry 4.0: Will learning change? Will schools adapt?* Prof. Arnulfo Azcarraga, Software Technology Department, College of Computer Studies, De La Salle University	
10:00-10:45	PLENARY LECTURE 1 *Science Communication as Catalysts for an Engaging Science* Mr. Joel Adriano, Regional Coordinator, Asia Pacific Edition, SciDev.Net	
10:45-11:00	B R E A K	
11:00-11:45	PLENARY LECTURE 2 *Big Data, Bigger Challenges – stories from the computational life sciences* Dr. Anish Ms Shrestha, Software Technology Department, College of Computer Studies, De La Salle University	
11:45-1:00	L U N C H	
1:00 – 1:30	PLENARY LECTURE 3 Mr. Christian Edmund Chua and Mr. Christian Lauron Senior Director, Advisory, Financial Services Risk Management, SGV	HSSH 5/F
1:30-2:00	POSTER PRESENTATION (Selected Papers will be invited to the Gong Show at 6:00 PM)	HSSH 5/F

2:15-3:55	PARALLEL SCIENTIFIC SESSION 1	
	Session A: HCT-I [Chair: Neil Justin Romblon]	Y407
	Session B: FNH-I [Chair: Michael Ples]	Y408
	Session C: EBM-I [Chair: Robert Roleda]	Y409
	Session D: LLI-I [Chair: Minie Lapinid]	Y507
	Session E: SEE-IA [Chair: Martin Kalaw]	Y508
	Session F: LCCS-I [Chair: Jennifer Tan-De Ramos]	Y509
	Session G: TPHS-I [Chair: Christopher Concha]	V207
	Session H: SEE-IB [Chair: Maria Cecilia Paringit]	HSSH 5/F
3:55-4:00	B R E A K	
4:00-5:40	PARALLEL SCIENTIFIC SESSION 2	
	Session A: HCT-I [Chair: Marnel Peradilla]	Y407
	Session B: FNH-I [Chair: Faith Marie Lagua]	Y408
	Session C: EBM-I and SEPL-I [Chair: Emilina Sarreal]	Y409
	Session D: LLI-I [Chair: Lydia Roleda]	Y507
	Session E: SEE-IA [Chair: Lawrence Belo]	Y508
	Session F: LCCS-I [Chair: James Laxa]	Y509
	Session G: TPHS-I [Chair: Eric Sy]	V207
	Session H: SEE-IB [Chair: Ma. Carmen Lagman]	HSSH 5/F
6:00-8:00	RVRCOB Graduate Colloquium (organizer: Dr. Emilina Sarreal)	HSSH Roofdeck
	Gong Show for Selected Poster Presentations (moderators: Sean Francis Hinolan and Jainalyn Delantar)	HSSH 5F

20 June 2019, Thursday

8:30-9:00	Registration/ Viewing of Exhibits	HSSH 5/F
9:00-9:15	Opening Ceremonies	
9:15-10:00	KEYNOTE LECTURE 2 *Transforming the Philippine Economy in the Fourth Industrial Revolution* Dr. Rafaelita Aldaba, Undersecretary for Competitiveness and Innovation, Department of Trade and Industry	
10:00-10:45	PLENARY LECTURE 4 *Big Data, Innovation & Entrepreneurship: Closing the gap between ambition and action* Dr. Christopher Monterola, Head, Aboitiz School of Innovation Technology and Entrepreneurship, Asian Institute of Management	
10:45-11:00	B R E A K	

11:00-11:45	PLENARY LECTURE 5 *Language and Knowledge: Some Philosophical Investigations* Dr. Napoleon Mabaquiao, Philosophy Department, College of Liberal Arts	
11:45-1:00	L U N C H	
1:15-2:00	PLENARY LECTURE 6 *Spatio-Temporal Signatures of Complexity in Nature and Society* Dr. Rene Batac, Physics Department, College of Science, De La Salle University	
2:15-3:55	PARALLEL SCIENTIFIC SESSION 3	
	Session A: HCT-II [Chair: Nathalie Rose Lim-Cheng]	Y407
	Session B: FNH-II [Chair: Julien Carandang]	Y408
	Session C: EBM-II [Chair: Arnel Onesimo Uy]	Y409
	Session D: SEE-IIA [Chair: Al Rey Villagracia]	Y507
	Session E: LLI-IIA [Chair: Maricar Prudente]	Y508
	Session F: LLI-IIB [Chair: Ethel Ong]	Y509
	Session G: TPH-II [Chair: Francis Campena]	Y505
	NRCP Session: Lecture of Prof. Anthony Chiu and NRCP meeting (until 5 PM) *Science-Policy Interface on Global Resource Management* Dr. Anthony Shun Fung Chiu, University Fellow, Industrial Engineering Department, Gokongwei College of Engineering, De La Salle University	HSSH 5/F
3:55-4:00	B R E A K	
4:00-5:40	PARALLEL SCIENTIFIC SESSION 4	
	Session A: HCT-II [Chair: Ronald Pascual]	Y407
	Session B: SEE-IIB [Chair: Cynthia Madrazo]	Y408
	Session C: SEPL-II [Chair: Alellie Sobreviñas]	Y409
	Session D: SEE-IIA [Chair: Mary Ann Adajar]	Y507
	Session E: LLI-IIA [Chair: Shirley Dita]	Y508
	Session F: LLI-IIB [Chair: Voltaire Mistades]	Y509
	Session G: TPH-II and WCFE-II [Chair: Rechel Arcilla]	Y505
	NRCP Session: Lecture of Prof. Anthony Chiu and NRCP meeting (until 5 PM) *Science-Policy Interface on Global Resource Management* Dr. Anthony Shun Fung Chiu, University Fellow, Industrial Engineering Department, Gokongwei College of Engineering, De La Salle University	HSSH 5/F

21 June 2019, Friday		
8:30-9:15	Registration/ Viewing of Exhibits	HSSH 5/F
9:15-10:00	PLENARY TALK *Customer discovery: moving innovation from the lab to the market* Prof. Luis Sison, Director, UP Diliman Technology Transfer and Business Development Office	
	CO-LOCATED WORKSHOP UTM-DLSU CENCER Joint Conference Time: 08:00-5:30 pm | Venue: Andrew Gonzalez Hall Rm. 903 Organizers: De La Salle University, Manila, Philippines Prof. Divina Amalin and Prof. Ma. Luisa Enriquez Universiti Teknologi Malaysia, Malaysia Prof. Harisun and Prof. Rasnani *Details of the program on page 50-76*	
10:00-12:00	WORKSHOPS/MINI SYMPOSIUMS A: *Online Experiences of Filipino Children* Dr. Maria Caridad Tarroja, Psychology Department, College of Liberal Arts, De La Salle University	Y407
	B: *Global Environment Outlook for Youth* Dr. Neil Stephen Lopez, Mechanical Engineering Department, GCOE, De La Salle University Dr. Jose Isagani Janairo, Biology Department, College of Science De La Salle University	Y408
	C: Lecture Series of University Fellows *Structure of Research in the Philippines: Implications on the Fourth Industrial Revolution* Dr. Tereso S. Tullao, Jr., University Fellow, De La Salle University *Ergonomics and the Sitting Epidemic* Dr. Rosemary Seva, University Fellow, De La Salle University	HSSH 5/F
10:00-2:00	*Free Coffee: Liberating Coffee from Stereotypes* Organizer: Dr. Emmanuel Garcia, Director, De La Salle Food & Water Institute	Y409
12:00-1:00	L U N C H	

1:15-2:15	*Third Conversations on the Transformation of DLSU into a Research University* Dr. Raymond Girard Tan, Vice Chancellor for Research and Innovation, De La Salle University Dr. Merlin Teodosia Suarez, Vice Chancellor for Academics, De La Salle University Dr. Gerardo Largoza, Executive Director, Strategic Management and Quality Assurance Office, De La Salle University Dr. Feorillo Demeterio III, Director, University Research Coordination Office, De La Salle University Dr. Madelene Sta. Maria, Psychology Department, College of Liberal Arts, De La Salle University	HSSH 5/F
2:15-2:20	De La Salle Innersoul	HSSH 5/F
2:20-4:00	Presentation about the Research Centers Q&A (moderator: Dr. Ador Torneo, Political Science and Development Studies, De La Salle University) Break Awarding of Best Papers & Posters Closing Ceremony	HSSH 5/F

| PARALLEL SESSION SCHEDULE

PARALLEL SESSION DAY 1(June 19, 2019), Session 1

Time	Y407	Y408	Y409	Y507
	SESSION A Human Centric Technology (HCT) I	**SESSION B** Food, Nutrition and Health (FNH) I	**SESSION C** Entrepreneurship, Business & Management (EBM) I	**SESSION D** Learning and Learning Innovations (LLI) I
	Moderator: Neil Justin Romblon	Moderator: Michael Ples	Moderator: Robert Roleda	Moderator: Minie Rose Lapinid
1415-1435	HCT-I-001 Vital Sign Scanner with Bluetooth Capabilities Connecting to Android Application using Raspberry Pi *Miguel Magana, Sindayen Jacob, Go Rodrigo and Abuan Donabel*	FNH-I-001 Performance Evaluation of School Health Personnel: Its Implications to Public Health Management *Luzviminda Rivera*	EBM-I-001 Markovian Transition of Candlesticks in Stock Markets *Robert Roleda*	LLI-I-001 PROTOTYPE MODULE FOR ONLINE FUNCTIONAL ENGLISH FOR ADULT ASIAN NATIONAL BEGINNER LEARNERS *Aida Abdel Qader, Bryant Bennet Atencia and Vivien Iris Trinos*
1435-1455	HCT-I-002 Exchange Program Management System for De La Salle University Manila's External Relations and Internalization Office *Marivic Tangkeko, Celestine Marie Sevilla, Hanz Richardson Arce, Ana Francesca Laid and Aliana Magtoto*	FNH-I-002 Preparation and Characterization of Carbon Nanodots from Natural Polysaccharides and its Application as Photo Sensitizer in Solar Cell *Drexel Camacho and Jomar Sta. Ana*	EBM-I-002 Predictive Value of Candlestick Type on Price Movements in Stock Markets *Robert Roleda*	LLI-I-002 Select Variations on Mathematical Models of Cyclic Circadian Learning *Johanna Maris Alumbro, Genrev Josiah Villamin and Jose Tristan Reyes*
1455-1515	HCT-I-003 Association of Faculty Educators of DLSU Inc Portal with Document and Content Management *Marivic Tangkeko, Leonardo Jose Linga, Christian Nicole Alderite, Samuel Majilan and Anjoh Sarte*	FNH-I-003 Prevalence of soil-transmitted helminthiasis among Aetas in Brgy. Villa Maria, Porac, Pampanga *Jessica Joyce De Guia and Mary Jane Flores*	EBM-I-003 A Conceptual Paper on Relationship Management Skills: Towards the Development of Students Career Program *Maria Cristina Firmante*	LLI-I-003 Human-to-Human Storytelling: Towards Enhancing Man-Machine Interaction through Intelligent Conversational Agents *Ma. Joahna Estacio and Philip Rentillo*
1515-1535	HCT-I-004 Department of Transportation: Data Warehousing and Analytics *Marivic Tangkeko, Christian Louies Pagaduan, Dennis Paolo Espiritu, Justin Ethan Gorospe and Maria Isabela Pilapil*	FNH-I-004 Professional Resiliency and Self-Care Practices of Filipino School Counselors *Rosemarie Tayoto*	EBM-I-004 E-COFS: An Order Fulfillment System and E-Commerce Website for Hem+Kontor *Jonathan Einrick Cayabyab, Justine Edward Singca, Kayle Anjelo Tiu, Kurt Francis Villacorte and Michelle Renee Ching*	LLI-I-004 ANALYSIS OF THE GRAMMATICAL CONSTRUCTION AND COMPOSITIONALITY OF ALGEBRAIC EXPRESSIONS: LINGUISTICS AND LOGIC INTERFACE IN MATHEMATICAL LANGUAGE *Myla Santos*
1535-1555	HCT-I-005 Faculty of Arts and Languages Information Systems for PNU *Renato Jose Ma. Molano, Catherine Arguelles, Keith Tan, Brendan Lim and Charles Ng*	FNH-I-005 ANTIHYPERLIPIDEMIC EFFECT of SARABAT (Diplazium polypodiodes Blume) AQUEOUS EXTRACT IN DIET-INDUCED HYPERLIPIDEMIC RATS *Pablo Afidchao and Michael Ples*	EBM-I-005 An Empirical Study of Goodwill, Other Intangible Assets, and Disclosure Index on Cash Flow Activities of Philippine Publicly-Listed Companies over the financial reporting period 2013-2017 *Lalaine Reyes, Ma. Mikaella Gabriel, Rexielyn Tan and Reden Caraig*	LLI-I-005 The "Wrong Answer Note": An Analysis of Students' Errors *Ysabela Felice Robles, Ha Eun Lim, Jae Hong Min and Minie Rose Lapinid*

PARALLEL SESSION DAY 1(June 19, 2019), Session 1

Time	Y508	Y509	V207	HSSH 5/F
	SESSION E Sustainability, Environment and Energy (SEE) IA	**SESSION F** Living Culture and Contemporary Sciences (LCCS) I	**SESSION G** Theoretical, Philosophical, and Historical Studies (TPHS) I	**SESSION H** Sustainability, Environment and Energy (SEE) IB
	Moderator: Martin Kalaw	Moderator: Jennifer Tan-De Ramos	Moderator: Christopher Bryan Concha	Moderator: Maria Cecilia Paringit
1415-1435	SEE-I-010 Optimization of Simple and Rapid DNA extraction procedure for Tridacna Squamosa *Jane Abigail Santiago, Maey Janlyn Santos and Ma. Carmen Lagman*	LCCS-I-001 Nang Maiwan ang Haligi: Mga Kuwentong Karanasan ng Ilang Single Dad sa Pagharap sa Buhay Bilang Solo-Parent *Mariz Autor and Christopher Bryan Concha*	TPHS-I-001 Dogs, Rabies and the Filipinos: The Anti-Rabies Campaign in the Philippines, 1910-1934 *Arleigh Ross Dela Cruz*	SEE-I-001 Highway Roadside Unit Deployment Schemes based on Empirical Mobility Traces *Elmer Magsino*
1435-1455	SEE-I-011 Examining information management practices in disaster preparedness in the Philippines *Sherwin Ona, Rabby Lavilles and Emmanuel Lallana*	LCCS-I-002 Critical Discourse Analysis of the Online Indian-English Newsletter *Jennifer Tan-De Ramos*	TPHS-I-002 Ang Ikalawang Digmaang Pandaigdig sa Lente ng mga Pelikulang Hapones: Ang Pacifist Anime Bilang Gunita at Daluyan ng Kultura, Kalinangan, at Kasaysayan *Maria Margarita Mercado Baguisi*	SEE-I-002 Partial Cement Replacement with Fly Ash and Powdered Green Mussel Shells for Masonry Blocks with Plastic Waste Aggregates *Bernardo Lejano, Renzo Jasper Ang and Victor Joseph Dagdagan*
1455-1515	SEE-I-012 Indoor Air Quality Investigation and Analysis of a Multi-Purpose Building in Manila *James Daniel Cordon, Carina Geronimo, Bianca Paulyn Yiu, R. Angelo Genaro Briones and Martin Ernesto Kalaw*	LCCS-I-003 RELATIONSHIP COMPETENCY SCALE USING THE SOCIAL EMOTIONAL LEARNING THEORY– AN EXPLORATORY FACTOR ANALYSIS *Chona Chin*	TPHS-I-003 On the Zero Ring Index of Multipartite Graphs *Leonor Ruivivar, Feeroz Yusoph and Adrian Maniago*	SEE-I-003 Response Surface Modelling of Concrete mixed with Fly Ash and Recycled HDPE *Joenel Galupino and Mary Ann Adajar*
1515-1535	SEE-I-013 Design of Modular Casing for Flight Controller and Companion Computer Integration for a Quadcopter UAV *Russel McGarth, Marissa Regalado, Sonny Aniceto, Christer Ochengco and Alvin Chua*	LCCS-I-004 Teaching Intercultural Communicative Competence: The Perspective of Philippine ESL Teachers *Diane Maure*	TPHS-I-004 Ang Pag-ibig ni/kay Christopher Borela: Pakikipanayam Tungkol sa Pilosopiya at Estetika ng Kaniyang mga Areglo sa Korong Pilipino *Ernesto Carandang II and Christopher Bryan Concha*	SEE-I-004 GIS for Better Public Transportation and Transit *Maria Cecilia Paringit, Kervin Joshua Lucas and Miller Cutora*
1535-1555	SEE-I-014 Modelling Manila Rail Transit Reliability With Dynamic Bayesian Networks *Justin Andre Roasa, Gabriel Buquiron and Regina Tresvalles*	LCCS-I-005 Out of the Closet: The Role of Gay Men as Reflected in the Philippine Advertisements *Aileen Bautista and Alla Rey Villaverde*	TPHS-I-005 Ang Pamanang Kasaysayan: Isang Pag-aaral sa Ilang Antigong Bahay sa Malolos *Luis Alfonso Arcega, Ernesto Carandang Ii and Christopher Bryan Concha*	SEE-I-005 The use of in vivo mouse bone marrow micronuclei test and Atomic absorption spectroscopy for environmental biomonitoring of the aquatic bodies in and around Metro Manila, Philippines *Zeba Alam and Mikaella Umali*

PARALLEL SESSION DAY 1(June 19, 2019), Session 2

Time	Y407	Y408	Y409	Y507
	SESSION A Human Centric Technology (HCT) I	**SESSION B** Food, Nutrition and Health (FNH) I	**SESSION C** Entrepreneurship, Business & Management (EBM) I and Socio-Economic & Political Landscapes (SEPL) I	**SESSION D** Learning and Learning Innovations (LLI) I
	Moderator: Marnel Peradilla	Moderator: Faith Marie Lagua	Moderator: Emilina Sarreal	Moderator: Lydia Roleda
1600-1620	HCT-I-006 Structure-Preserving Guided Filtering *Carlo Noel Ochotorena and Yukihiko Yamashita*	FNH-I-006 Synthesis and Characterization of a Pyrazinamide derivative of Imidazo[2,1-b][1,3,4]thiadiazole, a potential Anti-tuberculosis drug *Faith Marie Lagua and Glenn Alea*	EBM-I-006 Development of Risk Assessment for High-Rise Building Investment Project in Metro Manila Based on Weighted Simulation Approach *Michael Almeida*	LLI-I-006 A Genre Analysis of School Mental Health Policy Documents *Sterling Plata*
1620-1640	HCT-I-007 FPGA-Based Implementation of Bit-Vector Algorithm *Lorenzo Bautista, Roger Luis Uy, Kyle Chua and Janz Villamayor*	FNH-I-007 A Spectroscopic and in silico Study of the Interactions of Sinigrin and Allyl Isothiocyanate with common Metal Ions *Jaime Raul Janairo, Bernard Jude M. Gutierrez and Marissa G. Noel*	EBM-I-007 Forecasting Philippine Stock Market Prices Using ARIMA-GARCH Models *Joyce Emlyn Guiao*	LLI-I-007 Effects of Block Scheduling on Grade 12 STEM Students' Academic Performance in General Physics 1 *Marjorie Nariz and Lydia Roleda*
1640-1700	HCT-I-008 An Investigative Study on the Factors Affecting the Usability of the Grab Application: An Applied Research *Patricia Artillera, Adriel Gaw, Jocelyn Morales, Alexandra Oropesa, Jiyoon Shin and Jazmin Tangsoc*	FNH-I-008 MICROCONTROLLER-BASED AEROPONIC FARMING MANAGEMENT SYSTEM *Maria Antonette Roque and Donabel Abuan*	SEPL-I-001 Inflation is Primarily a Monetary Phenomenon *Roberto Raymundo*	LLI-I-008 Development and Validation of Historical Physics Vignettes For Physics 2 Course of Senior High School *Marc Vener Del Carmen and Lydia Roleda*
1700-1720	HCT-I-009 A Comparative Analysis of Overlapping Speech Detection Techniques That Utilize Machine Learning for Meeting-type Audio Recordings *Neil Justin Romblon and Candy Joyce Espulgar*	FNH-I-009 Determining the Antioxidant Activities present in Calabash (Crescentia cujete) the "Miracle Fruit" *Lourdes Guidote, Mendoza Rafael, Cabe Lesl Jeramae, Garcia Keanna Marie and Shiu Rainier*	SEPL-I-002 Future Time Reference Among Bilinguals in an Investment Experiment *Gerardo L. Largoza, Maria Kaila D. Balite, Jerika Mariella C. Cleto, Matthew Gabriel E. Lao and Miguel Sebastian C. Santiago*	LLI-I-009 Quadruple Points ng Edukasyong Lasalyano sa Panahon ng Rebolusyong Industriyal 4.0 *Alona Ardales*
1720-1740				

PARALLEL SESSION DAY 1(June 19, 2019), Session 2

Time	Y508	Y509	V207	HSSH 5/F
	SESSION E Sustainability, Environment and Energy (SEE) IA	**SESSION F** Living Culture and Contemporary Sciences (LCCS) I	**SESSION G** Theoretical, Philosophical, and Historical Studies (TPHS) I	**SESSION H** Sustainability, Environment and Energy (SEE) IB
	Moderator: Lawrence Belo	Moderator: James Laxa	Moderator: Eric Siy	Moderator: Maria Carmen Ablan Lagman
1600-1620	SEE-I-015 Carbon Monoxide Adsorption on Os (0001) Surface for Fischer-Tropsch Synthesis *Hiromi Rivas and Nelson Arboleda*	LCCS-I-006 Taking Pride on Tattoos and Piercings: The LGTBQ Communities of La Union *Pauline Olea, Chrysta Ganal, Adrian Pugal, Mariella Tyrrell, Chrislyn Balanon and Lance Dauz*	TPHS-I-006 A Practical Branch and Bound Method for Heuristic Open Shop Scheduling to Minimize Total Weighted Tardiness *Eric Siy*	SEE-I-006 The Interplay Between Arts and Waste Management: A Phenomenological study *Goldame Yapit, Alonzo Andrei Rimando, Vincent Miguel Marron, Shanaia Argueza, Jio Tavares and Christian Aban*
1620-1640	SEE-I-016 Effects of Splicing, Load Variations, and Distance Variation to G3 PLC Transmission *Ann Dulay, Ryan Christopher Chu and Patrick Justin Tan*	LCCS-I-007 Estado ng Edukasyong Pansining Biswal sa mga Piling Pamantasan sa Pilipinas *Crislie Unabia, Joseph Reylan Viray, Lailanie Gutierrez and Jun Badie*	TPHS-I-007 Programming the Consciousness of a Non-living Thing: A Freudian Analysis of Artificial Intelligence *Kim Nucom*	SEE-I-007 Effect of particle size on the photocatalytic activty of Ag3PO4 *Eric Punzalan, James Garth Baron Acedera, Coleen Angela Velasco and Bryan Paulo Banatin*
1640-1700	SEE-I-017 The Effect of Temperature on Hydrogen Adsorption on a Single-Walled Carbon Nanotube: An Ab Initio Investigation *Ithan Jessemar Dollente, Jerome Ignatius Garces, Regina Damalerio, Jadin Zam Doctolero, Sean Elijah Tiu, Alberto Jr. Longos, Gian Paolo Bernardo, Michael Angelo Promentilla and Richard Espiritu*	LCCS-I-008 PINARES-PINAS: Pananaw at Pagpapahalaga ng mga Pilipino sa Sining Biswal *John Amtalao, Deborrah Anastacio, Israel Saguinsin and Kriztine Viray*	TPHS-I-008 THE BACLAYON CHURCH (BOHOL) DEBRIS OF MORTAR: A GEOMATERIAL DIMENSION OF A PHILIPPINE HISTORICAL-CULTURAL CHURCH *Aniano Jr. Asor, Bubbles Beverly Asor and Jan-Michael Cayme*	SEE-I-008 Weaving the Culture of Digital Tourism in the Summer Capital of the Philippines *Joshua Abiezer Marayag, Ana Sofia Loreen Mirambel and Ma. Sophia Isabelle Gaspar*
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1720-1740	SEE-I-019 Green Synthesis and Characterization of Magnetic Pectin-Iron Oxide Nanocomposite (MPION) and its Dye Adsorption *Erwin Gerona, Joanna Fajarito, Chelsea Cheuk, Timothy Olarte, Yves Reyes, Rey Ganado and Francisco Franco Jr.*	LCCS-I-010 Lasallian Discernment: A Communal Reflection Method *James Laxa*		

PARALLEL SESSION DAY 2(June 20, 2019), Session 3

Time	Y407	Y408	Y409	Y507
	SESSION A Human Centric Technology (HCT) II	**SESSION B** Food, Nutrition and Health (FNH) II	**SESSION C** Entrepreneurship, Business & Management (EBM) II	**SESSION D** Sustainability, Environment and Energy (SEE) IIA
	Moderator: Nathalie Rose Lim-Cheng	Moderator: Julien Carandang	Moderator: Arnel Onesimo Uy	Moderator: Al Rey Villagracia
1415-1435	HCT-II-010 Use of Container Technology in an Academic Cloud Computing Environment *Kevin Michael M. Dela Cruz, Carl Anthony P. Genio, Angel Phonzo B. Tan, Miguel L. Uy and Danny Cheng*	FNH-II-010 Why Local Health Policy Systems Research Matter in Local Health Governance *Julien Carandang, Jose Santos VI Carandang and Dennis Erasga*	EBM-II-010 Industry 4.0 Readiness of Accounting Education: Analyzing CHED's accounting program standards *Arnel Onesimo Uy and Joy Rabo*	SEE-II-020 Seismic Fragility Assessment of Non-fixed Hospital Equipment *Paul Bryan Elfante, Aaron William Sy, Nathan John Tan, Eugene Cedric Reyes, Marc Adrian Kung and Lessandro Estelito Garciano*
1435-1455	HCT-II-011 Laguna Belair Transport Service Cooperative Management Information System *Lissa Magpantay, Nina Patricia Chua, Ronald Jason Deniega, Ira Inaki Macazo and Josef Paolo Manlapaz*	FNH-II-011 Differential gonad histomorphology and steroid hormones in Monopterus albus, rice paddy *Dulce Marie Nisperos and Gliceria Ramos*	EBM-II-011 Creating a Framework for User Acceptance for the IT-Based Telecommuting Work Arrangement for Information Technology (IT) Workers *Roy Consulta*	SEE-II-021 Deletion of the deoxyhypusine hydroxylase gene in yeast resulted in slow cellular growth and inactivation of OXPHOS *Hilbert Magpantay*
1455-1515	HCT-II-012 Designing A Location-Based Travel Application Via Data Integration and Opinion Mining *Kleve Laren Jullan Ducusin, Hade Heinrich Camacho, Jessa Mae Graciella Soliman and Ardee Joy Ocampo*	FNH-II-012 A Systems Thinking Approach to Research for Health Systems Resilience *Michael Angelo Promentilla*	EBM-II-012 A Multi-case Study of Change Facilitators: The Case of LSEED Program and Select Philippine Social Enterprise Models *Maria Carmen Apuli and Norby Salonga*	SEE-II-022 Ethylene Adsorption on Platinum (111) Catalyst - A DFT-based Investigation *Carlo Angelo Pelotenia, Susan Aspera, Al Rey Villagracia, Nelson Arboleda Jr., Melanie David, Hideaki Kasai and Hiroshi Nakanishi*
1515-1535	HCT-II-013 Concept Concordancer: A Visualization Tool for Corpus Analysis *Raymund Alvarez, Jonghyun Choi, Kimberly Martinez, Randolph Yu and Nathalie Rose Lim-Cheng*	FNH-II-013 Particle Size Distribution and Sensory Analyses of Coffee Using Various Manual Grinders *Emmanuel Garcia, Pierce Ivan Oliver Mistades, Erienne Hannah Cheng, Jc Mae Peroz and Mavis Jane Tan*	EBM-II-013 What Sets Them Apart? The Entrepreneurial Profiles of Serial and First Time Entrepreneurs *Emilina Sarreal*	SEE-II-023 First principle and molecular dynamics simulations on water adsorption on three-chained polyacrylamide *Al Rey Villagracia*
1535-1555	HCT-II-014 Estimation of Roadside Particulate Matter Using Traffic and Meteorological Conditions *Mary Grace Malana, Edgar Vallar, Maria Cecilia Galvez and Joel Ilao*	FNH-II-014 Fortification of rice with folic acid through surface modification and absorption *Rhowell Jr. Tiozon, Drexel Camacho, Glenn Oyong, Nese Sreenivasulu and Catleya Rojviriya*		SEE-II-024 Comparison on the Water Balance With and Without the Application of LID in an Urban Catchment in San Juan City, Philippines using Stormwater Management Model (SWMM) *John Christian Herrera, Ned Angelo Santiago, Israel Umali, Manuel Luis Ubaldo and Marla Redillas*

PARALLEL SESSION DAY 2(June 20, 2019), Session 3

Time	Y508	Y509	Y505	HSSH 5/F
	SESSION E Learning and Learning Innovations (LLI) IIA	**SESSION F** Learning and Learning Innovations (LLI) IIB	**SESSION G** Theoretical, Philosophical, and Historical Studies (TPHS) II	**SESSION H** NRCP SESSION
	Moderator: Maricar Prudente	Moderator: Ethel Ong	Moderator: Francis Joseph Campeña	
1415-1435	LLI-II-010 Language experiences, preferences and perceived proficiencies of multilingual Filipino-Chinese students: An exploratory study *Marianne Jennifer Gaerlan, Allan Rey Villaverde and Royce Randall Lim*	LLI-II-020 Listening Difficulties and Needs of Grade 11 ABM students in Calatagan, Batangas *King Arman Calingasan, Eden Flores, Maria Ghea Calalo, Menard Irac, Erdie Dominic Mabunga and Catherine Mones*	TPHS-II-010 Poisson Simultaneous Autoregressive Modelling of National Household Targeting System for Poverty Reduction (NHTS-PR) Data *Ellaine Krishel Go, Paula Margarita Tse Wing and Frumencio Co*	NRCP Meeting: Science-Policy Interface on Global Resource Management *Anthony Shun Fung Chiu*
1435-1455	LLI-II-011 Improving the Least Mastered Competencies in Science 9 Using "Pump it up!" Electronic Strategic Material *Rainier De Jesus*	LLI-II-021 An Analysis on the Preferred Learning Methods of Grade 12 STEM Visual Learners from De La Salle University - Manila *Abrey Angelo Arroyo, Anthony James Capitulo, Jann Therese Dizon, Nicolle Kendra Uy and Ethel Ong*	TPHS-II-011 Independent [1,2]-sets in a Cactus Graph *Francis Joseph Campena, Hans Steven Co Chien, Suhadi Wido Saputro and Eko Budi Santoso*	
1455-1515	LLI-II-012 College Students' Experience and Attitudes Towards Peer-Feedback in Writing *Bethany Marie Lumabi*	LLI-II-022 The Efficacy of Creative Play Approach in Teaching Modern Physics *Martin Antonio Frias and Lydia Roleda*	TPHS-II-012 Transition Probabilities on Wheel Graphs: An Application of Evolutionary Games on Graphs *Yvette Lim, Michelle Denise Tan and Carlos Jesus Gaerlan*	
1515-1535	LLI-II-013 A discourse analysis of the metaphors of teaching as reflected in the narrative reports of preservice teachers *Emily Astrero and Eden Flores*	LLI-II-023 A MOOC Camp-Based Flipped Classroom: Integrating MOOCs into University Curriculum *Romualdo Mabuan, Haydee Claire Dy, Cheryl Matala, Hazel Adriano and Arlene Ramos*	TPHS-II-013 A Cubic Harmonious Labeling of Paths *Cresencia Lawas and Vernel Lawas*	
1535-1555	LLI-II-014 Structured Problem-Solving Approach for Physics Word Problems *Charity Mulig-Cruz and Maricar Prudente*	LLI-II-024 The Effect of Influence-Embedded Physics Instruction to Student Academic Performance *Domarth Ace Duque and Lydia Roleda*	TPHS-II-014 On Efficient Zero Ring Labelling of Graphs *Francis Joseph Campena and Floresto Franco Jr*	

PARALLEL SESSION DAY 2(June 20, 2019), Session 4

Time	Y407	Y408	Y409	Y507
	SESSION A Human Centric Technology (HCT) II	**SESSION B** Sustainability, Environment and Energy (SEE) IIB	**SESSION C** Socio-Economic & Political Landscapes (SEPL) II	**SESSION H** Sustainability, Environment and Energy (SEE) IIA
	Moderator: Ronald Pascual	Moderator: Cynthia Madrazo	Moderator: Alellie Sobreviñas	Moderator: Mary Ann Adajar
1600-1620	HCT-II-015 A Digitally Automated Text to Braille Device for the Visually-Impaired *Andrea Odulio, Julianne Sadullo, Jean Gozon, Apple Li, Clement Ong and Hiroki Asaba*	SEE-II-029 Uncovering short- and long-run relationships between Philippine GDP, population and carbon emissions using Autoregressive Distributed Lag and Cointegration Analysis *Geoffrey Udoka Nnadiri and Neil Stephen Lopez*	SEPL-II-003 A Decomposition Analysis of Wage Inequality in the Philippines *Neriza Chow, Maria Fe Carmen Dabbay and Mariel Monica Sauler*	SEE-II-025 Assessing the Effectiveness of Fly Ash in Mitigating the Alkali-Silica Reaction in Concrete with Soda Lime Glass *Mary Ann Adajar*
1620-1640	HCT-II-016 Institutional Dashboard: Development of a strategic dashboard based BI Software *Christine Lucero and Lilia Cello*	SEE-II-030 Technology and Automation as Sources of 21st-Century Productivity: The Economics of Slow Internet Connectivity in the Philippines *Paul John Pena and Arno Azcarraga*	SEPL-II-004 A Sociocultural Model of Youth Political Disengagement: Political Distrust amidst Varying Country Contexts *Melissa Lopez Reyes and Shayne G. Polias*	SEE-II-026 VEMON: Vision-based Vehicle Counter for Traffic Monitoring *Joel Ilao and Jonathan Cempron*
1640-1700	HCT-II-017 Manifold Intra-Prediction for Image and Video Coding *Carlo Noel Ochotorena and Yukihiko Yamashita*	SEE-II-031 Development of a Multi - Split Solar-Assisted Cooling System for Residential Application *Efren Dela Cruz, Francis Isaac Marquez, Jeremiah James Domdom, Ralvene Villereal and Louie Bernard Estrellado*	SEPL-II-005 An analysis of the risk-return profile of the daily Bitcoin prices using different variants of the GARCH Model *Cesar Rufino*	SEE-II-027 Causal Relationship between Electricity Intensity and the Service Sector Value: The Philippine Case *Joel Tanchuco*
1700-1720	HCT-II-018 Contextualizing Programming Problems Using Philippine Stock Exchange Index Data *Florante Salvador*	SEE-II-032 Synthesis of pervious fly ash based geopolymer concrete *Truc Quynh K. Tran, Michael Angelo B. Promentilla and Aileen H. Orbecido*	SEPL-II-006 Unraveling Market Links: Modelling Extreme Downside Market Risk Transmission Between the US and ASEAN-5 Stock Markets *Mary Maxine Tong, Grecia Nicole Alcera, Christian Dale De Leon, Kizia Aubrey Cerine Cruz and Cesar Rufino*	SEE-II-028 Initial investigations on the surface properties of *Hibiscus tiliaceus* Linn . *Nesse Grace Resurreccion, Mariquit De Los Reyes, Cresencia Lawas, Emmanuel Garcia, Richelle Riche Bool, Enrique Daniel Jr. Labios, Betina Faye Perona, Kriz Anne Joyce Gabito and Roan Salas*
1720-1740				
1740-1800				
1800-1820				

PARALLEL SESSION DAY 2(June 20, 2019), Session 4

Time	Y508	Y509	Y505	HSSH 5/F
	SESSION E Learning and Learning Innovations (LLI) IIA	**SESSION F** Learning and Learning Innovations (LLI) IIB	**SESSION G** Theoretical, Philosophical, and Historical Studies (TPHS) II/Women, Children, Family and Elderly (WCFE) II	**SESSION H** NRCP SESSION
	Moderator: Shirley Dita	Moderator: Voltaire Mistades	Moderator: Rechel Arcilla	
1600-1620	LLI-II-015 Establishing Connections, Bridging the Gap: Library 4.0 and its Role in Digital Humanities *Donna Lyn Labangon and April Manabat*	LLI-II-025 Does Flexible Assessment Lead to Greater Student Engagement? Evidence from a Randomised Trial *Gerardo L. Largoza, Jashia Caila S. Chua, Marinelle R. Macalindong and Nicole B. Tajanlangit*	TPHS-II-015 Using Latent Class Analysis in Determining Risk among Filipino Young Adults and Adolescents *Coleen Kate Sison, Katrine Joyce Soriano and Rechel Arcilla*	Lecture of Prof. Anthony Chiu and NRCP Meeting
1620-1640	LLI-II-016 The Semantics and Grammar of Maximizers *Alvin Alonzo and Shirley Dita*	LLI-II-026 An Assessment of the e-Learning Management Systems Used by Philippine Insurance Agents of an International Financial Organization *Ma. Regina Bravo, Alvin Sibayan and Mary Jane Arcilla*	TPHS-II-016 The Nationalist Economist Crusade of Dr. Salvador Araneta *Jose Victor Jimenez*	
1640-1700	LLI-II-017 A Study on Hedges, Boosters and Lexical Invisibility in Political Blog Articles *Alvin Alonzo and Arnel Camba Jr.*	LLI-II-027 Social Responsibility and Involvement of Young People *Voltaire Mistades and Sr. Marita Cedeno Fma*	TPHS-II-017 Lasallian Discernment: A Communal Reflection Method *James Laxa*	
1700-1720	LLI-II-018 Using Socio- Dramatic Play to Improve the Emergent Writing Skills of 4-5 year old Filipino Children *Marikita Evangelista, Andrea Quimson and Carmela Mabala*	LLI-II-028 Open Innovation and Changing IP Strategy in the Fourth Industrial Revolution *Toni Mae Sy and Paul John Pena*	WCFE-II-001 Ang Pagsapit ng Kamuwangan sa Pelikula: Pagbakas sa Konsepto ng Coming of Age sa Pelikulang Bagets (1984) *Christopher Bryan Concha*	
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About the speaker:

PhD Computer Science from INP Grenoble, France, MS Computer Science from the Asian Institute of Technology, Bangkok, Thailand; BS Applied Mathematics, *cum laude*, from the University of the Philippines at Los Baños (UPLB). Pursued studies from high school all the way to doctorate studies through scholarships and grants from the Philippine government (NSDB and INTAPS programs), German government (DAAD), and the French government (CNOUS). Had also undergone specialized trainings such as IATSS Forum in Suzuka, Japan, a programme on Univ ersity Leadership at the University of Kassel in Germany, and the Lasallian Leadership workshop in Rome.

Former Vice Chancellor for Research and currently Professor of Computer Science and University Fellow at De La Salle University in Manila. Has been assigned to various other administrative posts, such as Associate Vice Chancellor for External Relations, Executive Vice President (head of Canlubang Campus), and Dean, Graduate School Director and Vice Dean of the College of Computer Studies. Prior to graduate studies, was an IT professional at the National Computer Center in Manila. Has also been a senior research fellow at the School of Computing, National University of Singapore.

As a certified Senior Quality Assurance assessor of the ASEAN University Network, and member of the AUN QA Council, has given numerous QA trainings for ASEAN QA practitioners, and has led numerous Quality Assurance assessment of several top universities in the ASEAN region. Published his research work in ISI and high-impact journals and presented papers in national and international conferences mainly in the area of the theory and applications of self-organizing maps and artificial neural networks.

Member of the AI Council of PCIEERD/DOST. Most outstanding alumnus of PSHS (*Gawad Lagablab*), of UPLB, and of AIT. Board member of the PSHS Alumni Association for a number of terms and the International Association of La Salle Universities (IALU). A longtime member of *Mensa*.

KEYNOTE LECTURE

Mainstreamed AI and the Industry 4.0 :
Will learning change? Will schools adapt?

Prof. Arnulfo P. Azcarraga, Ph.D.
University Fellow and Professor of Computer Science
De La Salle University

Abstract: The one huge driver of Industry 4.0 is the mainstreaming of *Artificial Intelligence* (AI), coupled with an ease of communication at great speeds and at such large volumes of data. Dire scenarios are being predicted. In particular, there are immediate, urgent concerns about the displacement of workers, particularly the call-center operators; as well as the mismatch between the skills of graduates and the needs of modern companies offering new services, or of those that will be run very differently in the near future. For these utilitarian concerns, we turn to schools for a suite of urgent and appropriate responses. Schools need to be re-structured, and their programmes re-oriented, to better prepare students for a future that is predictably fast-changing, highly innovative, and creative. However, it is not only the manufacturing and service sectors that will be disrupted. Education, as a sector, will also be affected in ways that are both exciting and scary. In particular, the way children, and adults, learn will be very different - essentially driven by the fact that knowledge is now freely available on the Web, and that learners now extensively use technology to collaborate, and learn together. Furthermore, intelligent digital tutors will at some point be viable replacements of the teacher (and the book) in schools and homes. Just a few years back, people would generally console themselves that only jobs that are repetitive and are easy to automate would be handed over to *chatbots* and virtual beings. People now continue to reassure each other that any task that requires creativity, common sense, intelligence beyond mere computation, humor, empathy … will never get to be performed by machines. The AI community has reason to believe that this is no longer true. With mainstreamed AI, we have before us an ultra-modern world that human beings have to share with their cyber creations. Indeed, society at large will be affected at an unimaginable scale.

About the speaker:

Joel D. Adriano is one of the first Filipino journalists to go online full-time. Joel has been writing for online publications since 2004. He is currently the Regional Coordinator for Asia-Pacific Region of SciDev.Net, a leading online publication with focus on science and development. SciDev.Net's main office is in the United Kingdom. Joel joined SciDev.net in September 2011 as regional coordinator of South-East Asia Pacific region. In 2016, he became the coordinator of the expanded Asia Pacific edition.

Joel is a graduate of the University of the Philippines Los Banos (UPLB) with a Master of Science degree in Environmental Studies. In 2013, the UPLB-School of Environmental Science and Management named him Distinguished Alumnus for Environmental Communication for his contribution in environmental conservation through his write-ups. He was also a graduate of BS Development Communication from the same university.

Joel has been a journalist and communication practitioner since he was in college, contributing to The Manila Times as a correspondent for agriculture and as countryside reporter in 1993. As a correspondent of The Manila Times, he wrote news feature and full feature articles for the Business, Science and Technology, Agriculture and Environment Sections. After a decade of consultancy work, Joel later reconnected with Manila Times, and served as its sub-editor for Business Section, Southern and Central Luzon Editions in 2003-04.

Joel has worked as communications consultant for various development projects, covering the areas of agriculture, science and technology, business, environment and education. Among these projects include United States-Asia Environmental Partnership; Fisheries Resource Management Project; Philippine Environment Monitor Project; Environmental Governance Program of the Asian Institute of Management; Environmental and Natural Resource Accounting Project; Agricultural Policy Research Advocacy and Assistance Program; and the Education for All Project of the Department of Education and UNICEF.

Joel has also contributed in the following publications: Bangkok-based Asia Times Online, Inter-Press Service, Asean BizTimes, Madrid-based Safe Democracy Foundation (Forum for a Safer Democracy); Illustrado magazine; Masigasig magazine; and Entrepeneur magazine.

Joel also part-time teaches development communication at the Adventist University of the Philippines since August 2018. Among the courses he teach are web journalism, multimedia writing and environmental communication.

Joel has been a recipient of various awards, including the Philippine Agricultural Journalists, Inc.'s Binhi Awards. In 2007, he won 1st place as Environment Journalist of the Year, while he was the Best Countryside Writer of the Year awardee in 1996. Joel had also been recognized as Outstanding Rotarian for five consecutive years by the Rotary Club of Makati Olympia in recognition for his work in the success of their club newsletter The Olympian where he was the editor.

PLENARY LECTURE

Science Communication as Catalysts for an Engaging Science

Mr. Joel Adriano
Regional Coordinator, Asia Pacific Edition
SciDev.Net

Abstract: Artificial Intelligence is changing the industrial landscape, plus big data and analytics will power development like never before. How to tap data networks will be a newly required and crucial skill.

Obviously then information systems will play a major role and that would include portals like SciDev.Net acting as alert systems to keep abreast of product innovation, design, delivery and revenue models. News agencies will have a very important role on product or technology acceptability and a catalyst for tomorrow's smart industry.

The challenge therefore is how to engage scientist and take advantage of the technological advancements to make sure that their work is communicated, be made readily available or that their voices and opinions are heard.

About the speaker:

Anish Shrestha is an associate professor at the College of Computer Studies, DLSU, and visiting associate professor at the Dept. of Computational Biology and Medical Sciences, the University of Tokyo.

Prior to this, he was an assistant professor at the University of Tokyo and a postdoctoral fellow at the National Institute of Advanced Industrial Science and Technology Japan.

He holds a PhD in computer science; and his research interests are at the intersection of computer science and the life sciences.

Big Data, Bigger Challenges – stories from the computational life sciences

Dr. Anish Ms Shrestha
Software Technology Department, College of Computer Studies
De La Salle University

Abstract: Thanks to revolutionary advances in DNA sequencing technology, research in the life sciences is becoming increasingly data-intensive. For computer scientists, this has provided opportunities to collaborate on interesting questions with unlikely partners.

At the same time, computer scientists face challenges of developing tools and methods that tease out big insights from big data. I will speak about these opportunities and challenges, especially in the context of DLSU as it continues to strengthen its research programs.

About the speaker:

Christopher P. Monterola, PhD is a Professor at the Asian Institute of Management. He heads the Institute's Aboitiz School of Innovation, Technology, and Entrepreneurship and is the Executive Managing Director of the Analytics, Computing, and Complex Systems (ACCeSs) Laboratory. Chris has published over 100 peer-reviewed articles in the field of Computational and Statistical Physics, Artificial Intelligence, and Complex Systems. He has led and managed multimillion-dollar research projects in the public and private sectors in the Philippines and abroad. Prior to AIM, Chris was a Senior Scientist and the founding head of the Complex Systems group at the Computing Science Department of the Institute of High Performance Computing, A*STAR, Singapore. He was simultaneously Adjunct Senior Research Fellow at the Complexity Institute, NTU, Singapore. Chris also taught at the University of the Philippines-Diliman and was a postdoctoral fellow at the Max Planck Institute for the Physics of Complex Systems in Dresden, Germany.

Big Data, Innovation & Entrepreneurship: Closing the gap between ambition and action

Prof. Christopher Monterola
Head, Aboitiz School of Innovation Technology and Entrepreneurship
Asian Institute of Management

Abstract: My talk will focus on how the combination of big data, powerful computing machines, and novel AI algorithms is changing the landscape of businesses and society, in general. By providing examples, I will illustrate how data science, especially AI, has accelerated innovation to create smarter cities, more agile business strategies, and better understanding of societal problems. Finally, I will share how our initiatives of creating a community of innovators, scientists, technologists, and entrepreneurs are organically fueling multi-sectoral partnerships in the country towards nation-building in the era of Industry 4.0.

About the speaker:

Dr. Napoleon M. Mabaquiao is a Full Professor (9) at the Department of Philosophy, De La Salle University-Manila. He is a former chair of the said department. Currently, he serves as the Graduate Program Coordinator of the same department and the university's LCC Coordinator for Ethics. His areas of specialization are ethics, philosophy of language, and philosophy of mind. He finished his B. A. in Philosophy (*magna cum laude*) and M. A. in Philosophy at the University of the Philippines-Diliman, and his PhD. in Philosophy (with high distinction and an outstanding dissertation award) at De La Salle University-Manila.

Language and Knowledge: Some Philosophical Investigations

Dr. Napoleon Mabaquiao
Philosophy Department, College of Liberal Arts
De La Salle University

Abstract: As the medium by which knowledge is sought, expressed, and preserved, language plays a critical role in the acquisition and understanding of the nature of knowledge. Just like any other instrument, language has properties that enable it to function in certain ways. These same properties, however, impose certain limits to what it can accomplish. Philosophers have investigated how language, given its properties, influences the nature of knowledge acquired through it. In this lecture, I shall look into some of the areas in which these investigations have been done; namely: the difference between ordinary and logical grammar, the limits of language as a system of representation, language as a rule-governed form of behavior, and the relation of language and mind.

About the speaker:

Dr. Rene C. Batac finished his Bachelor of Science in Physics (2006), Master of Science in Physics (2008), and Doctor of Philosophy in Physics (2011) from the University of the Philippines, Diliman, Quezon City, Philippines. He was an Instructor and later on an Assistant Professor of Physics from the same university from 2006 to 2018.

He has actively served in the Samahang Pisika ng Pilipinas (Physics Society of the Philippines), the professional organization of all physicists in the country, in various capacities. He held a Junior Councilor position from 2009 to 2012; served as a Senior Councilor from 2014 to 2015; and became the Secretary-General from 2015 to 2016.

He conducted two years of postdoctoral research work in the Max Planck Institute for the Physics of Complex Systems (Max-Planck-Institut für Institut komplexer Systeme, MPIPKS) in Dresden, Germany from 2014 to 2016. The MPIPKS is one of the Max Planck Institutes, which, collectively, are consistently ranked among the Top Think Tanks in Science and Technology in the world.

Since returning from postdoc in 2014, he has been heading a research group on the Dynamics and Organization of Complex Systems. Since September 2018, he has joined the faculty of the Physics Department, College of Science, De La Salle University Manila, Philippines as an Associate Professor and researcher. Together with his graduate and undergraduate students, he has been working on the quantitative characterizations of various social, economic, and natural complex systems. As a way of giving back, his group gives a particular emphasis on the analysis of data from the Philippines, with the hope of generating results that may be useful to the country.

Spatio-Temporal Signatures of Complexity in Nature and Society

Dr. Rene Batac
Physics Department, College of Science
De La Salle University

Abstract: Many systems in nature and society are composed of interacting agents obeying simple rules at the level of the local neighborhoods. These individual interactions, however, produce a collective effect that is remarkably different from the simple individual responses. We call this behavior emergent from the system, and these emergent features are considered to be the hallmark of complex behavior. Many complex systems are composed of individual decision-making agents; examples of such include animal groups, such as flocks of birds forming complex dynamical patterns or ant colonies developing hierarchical societies; human interactions, such as social, economic, and academic connections; and even virtual and computer systems, such as the World Wide Web, power grids, and transportation systems. Some others have no distinct decision-making agents, but are nevertheless showing emergence through bursty behaviors and universal statistical signatures; examples of these complex dynamical systems are earthquakes, landslides, and other natural hazards. Despite the differences in the origin of their emergence, all these systems have something in common: they are operating at a physical or structural space, and they evolve in time. This talk will present several investigations of complex signatures manifested by different systems in nature and society, as measured in the spatio-temporal and magnitude domains. In particular, the use of complex networks, or graphs, is explained, as well as the enhancements introduced to be able to include space, time, and/or magnitude information in a single characterization scheme. The distributions emerging from this characterization reveals regular statistical signatures, some of which are deemed to be universal. Apart from the characterization technique, these works are also novel because majority of them have incorporated data from the Philippines, some of which have been investigated using the lens of complexity science for the first time. The results are contextualized using similar works and other approaches from related disciplines. With the availability of very huge data sets and the rapid advancement in computational tools, many of the techniques that will be presented in this work may be extended into other systems. Studies such as these provide a unifying window for investigating complex systems across a broad variety of disciplines, and may benefit from interdisciplinary approaches and perspectives.

About the speaker:

Luis Sison is a professor at the Electrical and Electronics Engineering Institute of the University of the Philippines Diliman, director of the UP system Technology Transfer and Business Development Office, and the program leader of the DOST-UP Enterprise Center for Technopreneurship and UPscale Innovation Hub. He was vice-chancellor for research and development of UP Diliman from 2006 to 2011 during which he established the Technology Transfer Office. He was awarded the Gawad Pangulo for Progressive Teaching and Learning by UP in 2015, and his course on innovation and technopreneurship got the Silver Award for Teaching Delivery at the 2016 Wharton-QS Stars Reimagine Education Awards. He was a visiting researcher at the University of California Berkeley as a Banatao Fellow. He holds an MS and PhD EE degree from Purdue University and a BS EE degree from UP Diliman. His research interests are biomedical instrumentation and education technology.

Customer discovery: moving innovation from the lab to the market

Prof. Luis Sison
Director, UP Diliman Technology Transfer and Business Development Office

Abstract: Success in innovation follows from the ability to match technical capabilities and solutions with market needs and challenges. The customer discovery process from Stanford University is a systematic process of identifying these opportunities and iteratively developing and validating a technical solution. At the DOST UPSCALE Innovation Hub, this process when applied to technopreneurship classes as well as to technology transfer offices has yielded numerous industry collaborations, tech startups, and licensing partnerships not only for the University of the Philippines but also for the universities in the DOST HEIRIT and CHED Tech101 consortia.

About the speaker:

Anthony Shun Fung Chiu is University Fellow and Professor at De La Salle University. He is a member of the United Nations International Resource Panel, and a member of the Future Earth KAN on Systems of Sustainable Consumption and Production. Professor Chiu has published more than 200 papers, book chapters, and keynote documents in the field of Sustainable Consumption and Production (SCP), Resource Efficient and Cleaner Production (RECP), and Industrial Ecology / Eco-industrial Development (EID). He is also a Philippine Permanent Delegate to the United Nations 3R Summit, and member of the Philippine Delegation to Rio+20, SDG Roadmap, CSD19, etc. He served as member of the National Pollution Adjudication Board (Pollution Court) from 2004 to 2016. He is the founding vice-chair of the Industrial Engineering Certification Board. Professor Chiu is the first Philippine awardee of the American Society of Mechanical Engineers as outstanding international correspondent, and the first Philippine ASEAN Engineer in the field of Industrial Engineering from academe. Recently, he is the recipient of the NRCP Achievement Award in Engineering and Industrial Research.

Science-Policy Interface on Global Resource Management

Prof. Anthony Shung Fung Chiu
University Fellow, Professor, Industrial Engineering Department

Abstract: This lecture examines the emerging concept of circular economy (CE) while building on the earlier framework of Inclusive and Sustainable Industrial Development (ISID) and Sustainable Consumption and Production (SCP), both central to the United Nations Rio+20 and 2030 Sustainable Development Goals (SDG). The lecture begins with a macroscopic examination of the state of environmental impacts to date using 193 economy-wide data set. The role of resource efficient and cleaner production (RECP) in sustainable development is identified at operations level, factory level, and eco-system level. Cleaner production tools that are useful in the lifecycle perspective, eco-product management, sustainable consumption and production, closed-loop system, and related dimensions will be discussed in the context of the Asia Pacific and global perspective, and linking it to the 10YFP / Marrakech Process policy framework.

| WORKSHOPS/MINI SYMPOSIUMS

Session Title: Online Experiences of Filipino Children

Session Convenor: Maria Caridad H. Tarroja, De La Salle University - Manila

Motivation

The emergence of innovative technologies will not only bring disruptions to our socio-economic environment and lifestyles. It has and will continue to pose both opportunities and threats to our children as well. Recognizing this threat, UNICEF partnered with DLSU's Social Development Research Center to embark on a national study to understand how technologies and societal norms have combined in facilitating the occurrence of Online Sexual Abuse and Exploitation of Children (OSAEC) that impact the lives of Filipino children.

Through the systematic collection of data on OSAEC in the country, our study has yielded a body of knowledge on the perspectives and experiences of child victims / survivors and their families, perpetrators / offenders / facilitators, concerned government agencies and non-government organizations, regulatory and enforcement bodies, and the private sectors whose platforms of services are being utilized by the perpetrators. We see this forum as a good opportunity to raise awareness among the Lasallian community on the hidden dangers posed by technology and how we can respond as a community to this threat. It is also a good venue to continue the conversation with the private sector, government agencies, academicians and child advocates to enable the development and delivery of more dynamic and adaptive intervention programs and policies that place child protection as their core priority.

Special Session Description

In this session, the following lead investigators for the research will present their findings and recommendations as a step towards raising awareness among the Lasallian community.

Speaker	Research Field	Topic
Dr. Ma. Caridad Tarroja	Psychology	Impact on Children'
Dr. Ron Resurreccion	Psychology	Role of Family and Community
Ms. Maeyet Lapena	Psychology	Offenders
Ms. Ethel Ong	Computer Science	Technology and the Private Sector
Dr. Ma. Divina Gracia Roldan	Political Science	Case Management

Panel reactors from the DLSU community may be invited to encourage further collaboration in the design of appropriate intervention programs and better policy reforms on child protection.

Program

10:00am Introduction to OSAEC

10:15am OSAEC Experiences and Impact on Children's Psychological Wellbeing

Maria Caridad H. Tarroja, Ron R. Resurreccion, Ma. Araceli Alcala, and Patricia R. Simon
De La Salle University – Manila

This part of the symposium describes the profile, characteristics, and experiences of OSAEC victims and survivors as narrated by various key informants, social workers, lawyers, law enforcers, house parents, and other responders and stakeholders who are involved and responsible for the prevention of and intervention for this phenomenon. Through a qualitative study, themes were generated and clustered in terms of their motivation, experiences in recruitment and grooming, online abuse and exploitation, rescue, investigation and aftercare, and reintegration. The impact of the experience, rescue and investigation, disclosure and living in the shelter is likewise discussed. Other relevant themes that emerged in data are sense of safety, sense of shame, emotional attachment to perpetrator, resiliency of children. The study likewise looked into role of family, the community, and social norms in preventing and perpetuating the OSAEC phenomenon.

10:45am – Offenders Perspective

Maria Angeles Guanzon Lapeña (Global Resources for Assessment, Curriculum, and Evaluation), Agnes Villegas (Voice of the Philippines)

A qualitative research into the profile, motivations, and ways of operating of offenders (perpetrators and enablers) of online sexual abuse and exploitation of children was conducted through records analysis and key informant interviews. Specifically, the study was able to gather data on a) the profile, characteristics, experiences, and motivations of the offenders, b) how these offenders gain access to the potential child victims, c) the mechanics of operations of the offenders, including the mechanisms by which they engage with the victims, the network providers, and the money transfer agencies, d) the offenders' access to online childhood sexual exploitation materials in the Philippines through IP tracking and newspaper reports, and e) how the enablers and offenders of online sexual exploitation in the Philippines engage ISPs, network providers, app developers and other stakeholders.

11:00am -- Role of Technology and the Private Sector in OSAEC

Ethel Ong and Joanne Valle (De La Salle University Manila)

Innovative technologies such as social media platforms and digital communication have allowed us to communicate with others, regardless of geographic distance, through the Internet. This benefit, however, has brought with it a new set of threats to our personal safety, because malicious users have utilized this same service to find their victims. Termed “cybercrime”, ease of access to online facilities, and affordable computers and mobile devices have enabled a number of abuse and exploitation instances to affect children. In this study, we identified the role of the private sector, comprised of the financial sector, Internet service providers, and application developers, in facilitating and mitigating online sexual abuse and the exploitation of children through their platforms. Furthermore, we review the impact of technology-related laws, specifically RA No. 10929 that allows access to free Wi-Fi in public places, and RA No. 10175 or the Cybercrime Prevention Act, in the occurrence and prevention of OSAEC.

11:15am -- Case Resolution and Management Processes and Challenges

Ma. Divina Gracia Z. Roldan (De La Salle University Manila), Ma. Cristina H. Enriquez (PsychConsult, Inc.)

This paper seeks to shed light on the case resolution and management processes entailed in addressing the OSAEC phenomenon. It seeks to first identify the system for reporting cases from different stakeholders, and then proceeds to describing the activities entailed from trial to prosecution of cases. The main question this paper poses is “How effective is our system of managing and resolving cases concerning OSAEC?” By examining the gaps and weaknesses in the legal framework for the protection of children against online sexual abuse and exploitation, as well as the challenges faced by service providers in providing relief to victims of OSAEC, recommendations can be made on how to improve the current manner of handling OSAEC cases from a policy and legal systems level.

11:40am -- Open Forum

Global Environment Outlook Youth Report: Asia Pacific

Dr. Neil Stephen Lopez and Dr. Jose Isagani Janairo
Venue: Y408

Abstract

The Global Environment Outlook is the flagship environmental assessment report of the United Nations. For the first time in 2018, the United Nations Environment published a youth-oriented version for the Asia-Pacific. The report discusses the main environmental issues of the region, as interpreted by and for the youth, and highlights the various ways the younger generation can make a difference in the environment. The report aims to spark interest and hope in the younger generation, in light of meeting the Sustainable Development Goals by 2030. In this session, two of the lead authors from the UN Global Environment Outlook Asia Pacific Youth Report discuss the key points of the report and share about their experience working with the United Nations.

About the speakers:

Dr. Jose Isagani Janairo is an Associate Professor at the DLSU Biology Department, Head of the Biological Control Research Unit, and Associate Publisher of the DLSU Publishing house. He received his BS Biochemistry (cum laude) and MS Chemistry degrees at De La Salle University, Manila. He earned his Doctorate degree in Chemical Sciences as a Monbukagakusho scholar at Hokkaido University for his work about bionanotechnology. Dr. Janairo has received awards and recognitions from the ASEAN, Hokkaido University, Chemical Society of Japan, Japanese Biochemical Society, Japan Society for the Promotion of Science, the Clark Memorial Foundation, and the National Academy of Science and Technology, Philippines. Dr. Janairo has also been selected by the UN Environment as one of the lead authors in drafting the youth oriented version of the Asia-Pacific regional assessment. His current research interests lie in chemical ecology and semiochemistry.

Dr. Neil Stephen Lopez is currently Assistant Professor and Vice Chair of the Mechanical Engineering Department of De La Salle University, Manila, Philippines. In 2018, he was selected as one of the lead authors of the United Nations Environment Global Environment Outlook Youth Report for Asia Pacific.

His research works are mostly on energy economics, transportation assessment, and policy. His works have been published in top-tier research journals such as *Applied Energy (Impact Factor = 7.9)* and *Journal of Cleaner Production (Impact Factor = 5.65).* Currently, he is a co-proponent of multiple research projects. The Commission on Higher Education funded his team to develop tools for assessing transport desirability in various cities. Mitsubishi Motors Philippines Corporation in collaboration with the Department of Trade and Industry also recently funded his team to perform a comprehensive techno-socio-economic analysis of electric vehicle deployment in the Philippines.

Dr. Lopez earned his BS (2011), MS (2011) and PhD (2018) in Mechanical Engineering all from De La Salle University. While he is proudly a homegrown talent, he has also been trained in various institutions abroad: *Institute for Energy Systems, Economics and Sustainability – Florida State University, USA (2009); Transport Studies Unit – University of Oxford, UK*, (2017); *Bartlett School of Planning – University College London, UK*. (2017); and *Institute of Transportation Studies – University of California, Davis, USA* (2017).

UNIVERSITY FELLOWS LECTURE SERIES

Structure of Research in the Philippines: Implications on the Fourth Industrial Revolution

Tereso S. Tullao, Jr. PhD
University Fellow
De La Salle University

Abstract

The Fourth Industrial Revolution or Industry 4.0 is summarized as the blending of the physical, digital and biological worlds. This has brought exponential transformation in production and distribution processes and has impacted on "all disciplines, economies and industries." (Schwab, 2018). The bearing of Industry 4.0 on all disciplines is primarily on how knowledge is created, transformed and applied in merging the physical, digital and biological dimensions of human life. This, in turn, defines the country's ability to exploit the opportunities offered by Industry 4.0. The paper analyzes the creation of knowledge of the Philippines through the production research articles in Scopus indexed journals. Through a comparative analysis of the country's research output with ASEAN and other leading research producing countries the paper assesses the potential of the Philippines in exploiting the opportunities of Industry 4.0. Lastly, the paper presents the ranking Philippine universities in the production of research outputs required in Industry 4.0 .

About the speaker:

Tereso S. Tullao, Jr. is an Adjunct Professor of economics at De La Salle University-Manila (DLSU). He has been connected with the university since 1973 as a teacher, department chair, and dean. He is currently the Director of the DLSU-Angelo King Institute for Economic and Business Studies. He is also the Editor-in-Chief of the DLSU Business and Economics Review, a Scopus indexed journal. As a teacher, he was cited as one of the most outstanding teachers in the Philippines in 1993 by the Metrobank Foundation. As a researcher-writer, he has published a number of textbooks, monographs and research articles on economic development, economics of education, international migration and remittances, and trade in services.

Ergonomics and the Sitting Epidemic

Rosemary Seva, PhD
University Fellow
De La Salle University

Abstract

Office workers spend considerable time sitting in front of the computer. In a recent survey conducted in several offices in Manila, the most common musculoskeletal diseases (MSDs) are neck, shoulder and back pain. These diseases are closely related to postures brought about by the design of the workstation. In this lecture, the relationship of workstation design with MSDs with be explained. Practical solutions to ergonomics problem will be provided and the principles behind the solution. Ergonomics is not just about providing workers with good furniture. A more effective approach to minimize hazards in the workplace is education so that employees can easily identify hazards and eliminate them using their knowledge of basic ergonomic principles.

About the speaker:

Rosemary Seva is a Professor of Industrial Engineering at De La Salle UniversityShe is the current President of the Human Factors and Ergonomics Society of the Philippines (HFESP) and the Asian Council on Ergonomics and Design (ACED). She obtained her doctorate degree at the Nanyang Technological University (Singapore) and master's degree in Ergonomics from the University of New South Wales (Australia). She is an Ausaid scholar and a recipient of Distinguished Educator Award from the Industrial Engineering and Operations Management (IEOM) Society. She is a Professional Industrial Engineer (PIE) and ASEAN engineer.

Free Coffee: Liberating Coffee from Stereotypes

Venue: Y409
Organizer: Dr. Emmanuel Garcia, Director, De La Salle Food and Water Institute

The workshop will feature demos and cupping/tasting of various coffee origins and types. The objective of all these is to:

1) Introduce academics to the nuances of coffee that may allow them to see potential research areas that would benefit the coffee industry, particularly the farmers, the most marginalized in the value chain; and
2) Create a venue for industry practitioners to meet and discuss with academics

About the speaker:

Emmanuel Garcia is an assistant professor at the DLSU Chemistry Department. He is currently the director of the La Salle Food and Water Institute. His main area of interest is coffee chemistry, but has also been working with the local coffee industry in terms of education and research. He is the first Filipino fellow at the prestigious Re:co Symposium of the Specialty Coffee Association, the global organization on coffee.

Third Conversations on the Transformation of DLSU into a Research University

Venue: HSSH 5/F

Dr. Raymond Girard Tan
Vice Chancellor for Research and Innovation, De La Salle University

Dr. Merlin Teodosia Suarez
Vice Chancellor for Academics, De La Salle University

Dr. Gerardo Largoza
Executive Director, Strategic Management and Quality Assurance Office, De La Salle University

Dr. Feorillo Demeterio III
Director, University Research Coordination Office, De La Salle University

Dr. Madelene Sta. Maria
Psychology Department, College of Liberal Arts, De La Salle University

Abstract

De La Salle University started the transition into a research university in 2011. This session on Conversations about DLSU Transition into a Research University is actually the fourth conversation among stakeholders to reflect on the status, milestones, directions, goals of this ongoing process. The rough objectives of this session is to contribute towards the completion of the said transition by 2021 (a full decade after 2011), and to make DLSU a robust research university by 2025 (DLSU's 50th year of being a university).

01:15-01:25	Summary of the Past 3 Conversations, Dr. Feorillo Demeterio
01:25-01:35	Preliminary Findings on the DLSU Stakeholders' Understanding of a Learner-Centered Research University, Dr. Madelene Sta. Maria
01:35-01:45	OVCRI's Role in Completing DLSU's Transition into a Research University Dr. Raymond Tan
01:45-01:55	OVCA's Role in Completing DLSU's Transition into a Research University Dr. Merlin Teodosia Suarez
01:55-02:15	Synthesis and Visualization of the Possible Goals and Milestones for the Next Six Years, Dr. Gerardo Largoza

Center for Natural Science and Environmental Research (CENSER), De La Salle University
in collaboration with
Institute of Bioproduct Development (IBD), The University Teknologi Malaysia

Presents a Symposium on

TECHNOLOGY GENERATION IN MEDICAL AND AGRICULTURE
FOR HUMAN HEALTH AND ENVIRONMENT

Venue: Andrew Gonzalez Hall Rm. 903

P R O G R A M M E

0800	Registration
0830	Opening Program
0845	Welcome Remarks Eric Camilo Punzalan, Ph.D., Assist Dean for External Affairs and La Sallian Mission
0900	Keynote Speaker *Research Collaboration towards a Sustainable Research Environment: The DLSU Experience* Raymond Tan, Ph.D., Vice Chancellor for Research and Innovation
0930	Plenary Speaker 1 *Evaluation of the Effect of Different Extraction Time on Antioxidant and anti-inflammatory activity of Curcuma variety* Harisun Binti Ta'akob, Ph.D., Institute of Bioproduct Development (IBD), Universiti Teknologi Malaysia (UTM)
1000	Plenary Speaker 2 *Developing Herbal Medicine to Mobilize Translational Research in the Philippines* Nilda Munoz, MSc, Scientist-In-Residence, CENSER, DLSU
1030	C O F F E E B R E A K
1045	Plenary Speaker 3 *Therapeutic effect of Labisia pumila extract: A phytoestrogenic plant of Malaysia* Rosnani Hasham, Ph.D., Institute of Bioproduct Development (IBD), Universiti Teknologi Malaysia (UTM)
1115	Plenary Speaker 4 *Case studies on the use of genetic and genomic markers with image analysis, GIS mapping and mobile computing for agriculture and aquaculture* Maria Carmen Lagman, Ph.D., Practical Genomic Research Unit, CENSER, DLSU
1145-1200	O P E N F O R U M L U N C H
1300	Plenary Speaker 5 *Volatilomics: reinventing semiochemistry for the challenges of modern agriculture and public health* Jose Isagani Janairo, Ph.D., Biological Control Research Unit, CENSER, DLSU

1330	Plenary Speaker 6 *Carbapenemase-Producing Enterobacteriaceae What is so alarming?* Esperanza Cabrera, Ph.D., Biology Department, MSUL, CENSER, DLSU
1400	Plenary Speaker 7 *Environmental Biomonitoring: Quantification of genetoxicity using different Biomonitors to assess the toxicity status of the environment* Zeba Alam, Ph.D., Biology Department, DLSU
1430	Plenary Speaker 8 *The automation of An Urban Agri-hydroponics project* Bjorn Santos, Ph.D., President, Vice Chancellor for Salikneta, De La Salle Araneta University
1500	O P E N F O R U M C O F F E E B R E A K
1515	Plenary Speaker 9 *A Currently "Endangered Species" is Vital in IPM: Revisiting a Lesson Learned From the "Cocolisap" Story* Billy Joel Almarinez, Ph.D., Biological Control Research Unit, CENSER, DLSU
1545	Plenary Speaker 10 *Sitting in the mud: Lessons from the mangrove crab* Chona Camille Abeledo, Ph.D., Practical Genomic Research Unit, CENSER, DLSU
	G R A D U A T E S T U D E N T S R E S E A R C H P R E S E N T A T I O N S
1615	*Quorom Sensing Quenching Activity of Andrographis paniculata compounds on biofilm formation of clinical isolates of Pseudomonas aeruginosa and Acinetobacter baumannii* Ann Margarete Tan, Biology Department, COS, Molecular Science Unit Lab, CENSER, DLSU
1630	*Assessment and Transmission of Wolbachia in Aedes spp. Mosquitos (Diptera: Culicidae) In Selected Barangays of General Trias (Cavite), Lucena City (Quezon Province) and Selected Cities of Metro Manila, Philippines* Daisy Sucaldito, BCRU, CENSER, DLSU
1645	*Development of Nano-Biosensor Technology in Disease Surveillance and Diagnosis of Economically Important Crops* Marbie Babaan, BCRU-CENSER, DLSU
1700	*Use of semiochemicals in the control of the cacao mirid bug, Helopeltis bakeri* Mary Jane Flores, Ph.D., Chairman, Biology Department, DLSU
1715	O P E N F O R U M
1730	Closing Remarks Mary Jane Flores, Ph.D., Chairman, Biology Department, COS, DLSU

Master of Ceremonies:
Ma. Luisa D. Enriquez, Ph.D.
Professorial Lecturer, Biology Department, COS
Scientist in Residence, CENSER, DLSU

Raymond Tan, Ph.D., Vice Chancellor for Research and Innovation
De La Salle University

About the speaker:

Raymond R. Tan is a professor of chemical engineering, University Fellow and current Vice-Chancellor for Research and Innovation at De La Salle University, Manila, Philippines. He is also an Academician of the Philippine National Academy of Science and Technology (NAST). His research focuses on the development of novel computational techniques for the design of sustainable industrial systems. In particular, he is the co-developer of carbon emissions pinch analysis (CEPA) methodology, and is also a leading authority in specialized process systems engineering (PSE) and process integration (PI) sub-areas, such as process graph (P-graph) modeling, non-conventional applications of pinch analysis, and fuzzy life cycle assessment/optimization. Prof. Tan received his BS and MS degrees in chemical engineering and PhD in mechanical engineering from De La Salle University. He is the author of more than 300 Scopus-indexed publications (including articles, conference papers and book chapters), with a total of over 5,000 citations and an *h*-index of 40. He is co-editor-in-chief of *Process Integration and Optimization for Sustainability* (SpringerNature), subject editor of *Sustainable Production and Consumption* (Elsevier/IChemE), and an editorial board member of *Clean Technologies and Environmental Policy* (SpringerNature) and the *Int. J. of Supply Chain and Operations Resilience* (Inderscience). He is also coauthor of the book *Input-Output Models for Sustainable Industrial Systems* (SpringerNature), and co-editor of *Recent Advances in Sustainable Process Design and Optimization* (World Scientific) and *Process Design Strategies for Biomass Conversion Systems* (Wiley). Prof. Tan has received multiple awards from NAST, the Department of Science and Technology (DOST), the Commission on Higher Education (CHED), the Philippine American Academy of Science and Engineering (PAASE), the National Research Council of the Philippines (NRCP) and the De La Salle Alumni Association (DLSAA).

KEYNOTE SPEAKER

Research Collaboration towards a Sustainable Research Environment:
The DLSU Experience

Raymond Girard Tan, Ph.D.
Vice Chancellor for Research and Innovation
De La Salle University

Abstract: Collaboration is an integral element of modern scientific research. In many disciplines, single-author articles have become rare, while papers with multiple authors (often representing different affiliations and specializations) are now the norm. Papers from the latter group also outperform single-author articles in terms of impact and citation, which illustrates how research team members with "orthogonal" views can lead to better outputs. In this talk, the role of collaboration in enriching research productivity and quality is discussed. We look specifically at different modes of collaboration, including those undertaken with students and colleagues from within an institution and from partner institutions. Insights drawn from recent DLSU experience are then discussed, and recommendations on how to form successful research teams are given.

HARISUN BT. YAAKOB, PhD
Institute of Biodevelopment, University Teknologi Malaysia
Malaysia

About the speaker:

Harisun BT. Yaakob is the senior lecturer a the Institute of Bioproduct Development (IBD), Universiti Teknologi Malaysia, Skudai and have in service for the past 18 years. She graduated from the University of East Anglia in 2010 where she obtained her Ph.D (Biological Sciences). Prior to that, she completed her MSc in 2006 (Bioprocess Engineering) and BSc. (1999) in Universiti Teknologi Malaysia. Her professional expertise is on food and nutraceutical product development, lipid delivery systems, probiotic, phytochemical and cell culture. She has an excellent researcher showed by her publications, consultancy works and received a lots of higher prestigious award from local and international products and innovation competition. She has been invited a plenary speaker and giving oral presentation on the international and national scientific meetings and seminars. Her contributions on established a platform of laboratories and R&D activities in IBD UTM making a IBD as reference centre for bioproduct, herbal, phytochemical and biochemical processing in the country. She is also a course tutor and practical instructor for the postgraduate and short courses organized by IBD and responsible on academics aspects especially supervise undergraduate and postgraduate students as well as research and consultant.

PLENARY SPEAKER

Evaluation of the Effect of Different Extraction Time on Antioxidant and anti-inflammatory activity of *Curcuma* variety

Dr. Harisun Yaakob[1,2], Fathiyah A.Faraid[2]

[1]School of Chemical and Energy Engineering, Universiti Teknologi Malaysia, 81310, Skudai, Johor, Malaysia
[2]Institute of Bioproduct Development, Faculty of Chemical and Energy Engineering, Universiti Teknologi Malaysia, 81310, Skudai, Johor, Malaysia

Abstract: The time of extraction play important roles in retaining the biological activities of the compounds. Therefore, in order to maximize the yield of antioxidant and anti-inflammatory compound, this study was done to investigate the effect of time on the antioxidant and anti-inflammatory activity of different *Curcuma* variety. Three variety of *Curcuma* were extracted at different times, 2h, 4h and 6h respectively. Then, 1, 1-Diphenyl-2-picryl-hydrazyl (DPPH) scavenging effect analysis was used to determine on the antioxidant activity of different *Curcuma* species. The anti-inflammatory study was conducted by assessing the potential through albumin denaturation inhibition assay. From the study, it is found that the extraction time had affected all the variables where there was siginificant increase in yield of extract, curcumin yield, and Total Phenolic Content (TPC), Total Flavonoid Content (TFC) and terpenoid concentration in line with the increase in time. In addition, the increased inhibition activity of radical scavenging and inhibition of protein denaturation also increases. The best extraction time for *C. longa*, *C. zedoaria* and *C. caesia* was at 6 hours. The maximum yield of extract (5.7402g) and curcumin yield (348.338µg/mg) was found in *C. longa* rhizome extract. The highest amount in TPC (11676.67µg/mg ±152.75), TFC (3923.333 µg/mg ±33.33) was found in *C. longa* extract. The DPPH free radical scavenging activity of the crude extracts of the rhizome samples, among them, *C.longa* was found to be the highest DPPH scavenging activity with 65.55±0.063% at 10µg/ml. Meanwhile, *C. caesia* possess high terpenoid concentration (211.48µg/mg ±0.13) and had shown the greatest inhibition capacity had shown the greatest inhibition capacity with 98.17± 0.002% in anti-inflammatory assay.

Maria Nilda M. Muñoz, MSc.
Scientist in Residence, CENSER, DLSU

About the speaker:

Nilda counts 33 years of research experienced in Section of Pulmonary and Critical Care Medicine at The University of Chicago. She published 110 papers in peer review journals, authored 2 book chapters: in Encyclopedia of Molecular Pharmacology and Pulmonary & Critical Care Pharmacology & Therapeutics; 3 State of the Art Scientific Reviews and presented 222 abstracts (US/UK/Asia). For several years, Nilda served as Asst. Professor of Medicine (Pritzker School of Medicine, University of Chicago), Senior Research Scientist (GlaxoSmithKline The University of Chicago Asthma Center of Excellence) and Laboratory Manager (Pulmonary & Critical Medicine, The University of Chicago). She returned to the Philippines as long-term Balik Scientist in 2010-2013 at PFLHRD Philippine Heart Center. She served as Senior Research Scientist and teaches in St. Luke's College of Medicine and Master in Molecular Medicine Program. As Head of Basic Science and Health-related Research, her research interest are Herbal Medicine and Inflammation Research, *e.g.,* asthma, allergy, diabetes/cadiomyopathy, cancer, air pollution, animal model of diseases, dengue. She developed a monoclonal antibody against secretory group V phospholipase A_2 and got a USA patent for the discovery. In line with this, she is now working on the humanization of $gVPLA_2$ mAb, and diagnostic tool for asthma using $gVPLA_2$, a predictive biomarker for asthma. In 2015, she was awarded as Most Outstanding Alumna in Chemistry of Adamson University, and named as DOST Science Ambassador of Region 2. Recently, she was appointed as Editorial Board of newly established Animal Science & Experimental Medicine, Beijing, China and Korea Animal Research Journal, Korea. Nilda is a Research Consultant for a number of institutions in the Philippines. She is currently a Scientist in Residence at the DLSU and R&D Lead Scientist at the Cagayan State University, Tuguegarao and University of Perpetual Help Systems, Binan, Laguna

Developing Herbal Medicine to Mobilize Translational Research in the Philippines

Maria Nilda M. Muñoz, MSc
*Scientist in Residence, De La Salle University-Manila
*R&D Lead Scientist, Cagayan State University-Andrews Campus &
University of Perpetual Help System, Binan, Laguna
*DOST BALIK SCIENTIST 2010-2013

Abstract: Translational Medicine is a fast growing discipline in biomedical research and intends to accelerate the discovery of latest diagnostic tools and managements by using a multi-disciplinary " bench-to-bedside approach". Translational medicine is focused on ensuring that established approaches for disease treatment and prevention are actually put into action within the community. This area of research plans to advance human health and endurance by determining the significance of human disease of innovative discoveries in the biological sciences. The "bench-to-bedside" is an effort to build on basic scientific research new therapies, medical procedures, or diagnostics.

Acute and Chronic inflammation is linked to asthma, heart disease, diabetes, and acute respiratory distress syndrome (ARDS) that can have severe, life-threatening consequences. Our laboratory at the University of Chicago discovered and produced the monoclonal antibody (mAb) directed against group V phospholipase A 2 (gVPLA 2). We have demonstrated that this mAb inhibited the bronchial airway hyperresponsiveness and airway inflammation in murine model of asthma. Deletion of gene encoding gVPLA 2 and application of gVPLA 2 siRNA have lessened the exacerbation of allergic asthma and LPS-induced ARDS, respectively. This is the first demonstration presenting that gVPLA 2 mAb has anti-inflammatory effect on both asthma and ARDS, however, translational research using humanized antibody is costly and it requires series of clinical phases to test its safety, efficacy, or optimal use prior to marketing.

In the Philippines, there are many things one can do to prevent the inflammatory diseases from happening, and eating well is a great setting to start. One can eat fresh fruits that contain inflammation fighting-nutrients, and Wild Berry is a promising competitor. We have found that Wild Berry is rich in phenols, steroids and flavonoids. Our recent data also showed that administration of this berry extract in mice: a) reduced the carrageenan-induced paw edema, c) blocked the secreted IL-6 obtained from bronchoalveolar lavage fluid, d) reduced the BAL total protein content, and e) inhibited the vascular permeability caused by LPS activation. It was also established that extracted Wild Berry is non-toxic when administered in mice, and did not damage the different organs at 2000 mg/kg dose. Unlike humanized gVPLA 2 , Wild Berry as remedy for inflammatory diseases is realistic, cost-effective and affordable to low income population in the Philippines particularly to patients suffering from asthma and ARDS. Herbal plants are a reliable source for more discovery and development of new drugs. The scientific community should therefore harness this resource by improving research on medicinal plants.

PhD (Biochem Eng) (Dongguk University, South Korea), M. Eng (Bioprocess) (Universiti Teknologi Malaysia), B. Eng (Chemical-Bioprocess) (Universiti Teknologi Malaysia), BEM (95051A), Icheme, UK (100059065), MyCRS (MyCRS00124)

About the speaker:

Rosnani Hasham @ Hisam obtained her first degree in Chemical-Bioprocess Engineering and Master's Degree in Bioprocess Engineering from Universiti Teknologi Malaysia. In 2009 she was awareded the prestigious Dongguk University Research Scholarship to pursue a PhD study in Bio-Chemical Engineering, and successfully received her PhD degree in 2013. Dr Rosnani has been with Universiti Teknologi Malaysia for almost 18 years. Her research career began in 2000 as a Research Officer and is currently a Senior Lecturer at the Department of Bioprocess and Polymer Engineering since 2013. She has dedicated her research career to a broad range of areas including skin molecular biology, novel ingredients discovery and formulation, in vitro pharmacological evaluation, as well as wellness and aromatherapy consultant and trainer. Dr Rosnani is an active researcher and passionate in exploring and studying Malaysian indigenous plants as a potent source of medicinal or cosmeceuticals through the identification of its bioactive components. Additionally, her expertise also includes the inclusion of research and applications of nanomaterials, *in vivo* pharmacological evaluation and controlled release efficiency.

Therapeutic effect of *Labisia pumila* extract: A phytoestrogenic plant of Malaysia

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Abstract: *Labisia pumila* or locally known as Kacip Fatimah has been widely used by women in Malaysia to treat post-partum illnesses. This herbaceous undershrub of the Myrsinaceae family has been exploited aggressively as beverages, cosmetics as well as health supplement to promote wellness in the past. This present study was to determine the anti-proliferative properties of *L. pumila* crude extract against prostate cancer cell lines. In this study, the crude extract was prepared by using ultrasound assisted extraction method. The preliminary result revealed that *L. pumila* crude extract inhibited the proliferation of the prostate cancer cell lines. The crude extract was further fractionated using column chromatography and the most active fraction (40% MeOH) was selected based on MTT assay. Crude and 40% MeOH was further investigated for the identification of the type of cell death through flow cytometry and fluorescent microscopy. The result displayed the early and late apoptosis percentage was higher in the crude rather that 40% MeOH fraction. Despite of the characteristic of apoptosis events clearly found in all treatment, apoptotic body can only be found in the DU 145 prostate cancer cell morphology after induced with 40% MeOH fraction. Result from the scavenging activity test confirmed that *L. pumila* crude extract and 40% MeOH displayed a strong activity with the value of approximately 70%. Total phenolic content assay was carried out to determine the phenolic compound of the extract and its active fraction. Identification of polyphenolic compound was done through LC/MS and the result reported that rutin and 3 organic acids such as gallic acid, p-coumaric and salicylic acid had been detected in both crude and 40% MeOH fraction. HPLC analysis confirmed the Gallic acid one of phytochemical constituents found in *L. pumila*. In conclusion, these findings suggested that bioactive crude and 40% MeOH fraction of *L. pumila* contains phenolic compound that act as an anti-proliferative agent against proliferation of prostate cancer cell lines *in vitro.*

Ma. Carmen Ablan Lagman, PhD
Professor, Biology Department. COS
Head, Practical Genomics Lab, CENSER

About the speaker:

Dr. Carmen Lagman is trained in the field of molecular ecology and population genetics mainly with marine fish and aquaculture but since then has branched into developing molecular marker-based solutions to farmer and fisher defined problems by integrating genetics and genomic marker screening technology with image analysis, GIS mapping and mobile computing. She and her interdisciplinary teams at DLSU work with partners in other research agencies, NGOs, LGUs and local farmers and fishers in defining, designing and testing technologies with the aim of addressing the need. Prior to joing DLSU, Dr. Ablan Lagman was a Research Scientist at the WorldFish Center. She has lived for extended periods of time in Malaysia, Japan, Thailand and the US. Dr. Ablan Lagman is a 2013-14 Fulbright Senior Visiting Researcher to the Oregon State University in Corvallis, Oregon and a Newton-Agham 2017 Leadership in Innovation Fellow to the Royal Academy of Engineering in London, UK and the Asian Institute of Management in Manila.

Case studies on the use of genetic and genomic markers with image analysis, GIS mapping and mobile computing for agriculture and aquaculture

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Abstract: Recent advances in genetic and genomic marker technologies have provided a means to access information from genomes and specific genes in a cheaper and quicker manner. The amount and access to genetic and environment data from on-line repositories have also substantially increased. It is now possible to query download and process through machine-learning algorithms massive amounts of data, creating new applications for research on DNA structure, function and gene expression. The applications of these new developments to practical issues in agriculture and aquaculture are numerous, particularly in the areas of species, variety and individual identification. Developments of seedstock or planting material and designing screening kits to detect target varieties of animals or plants may benefit from these technologies. Materials which trigger specific gene expression profiles may also be screened. Examples of how information from DNA structure and gene expression are integrated with data from image analysis, GIS mapping and mobile computing for practical application in aquaculture and agriculture are presented in this talk. For aquaculture examples include a mobile application that detects the identity of wild caught juvenile mangrove crabs which are support the mangrove crab farming industry, initial work on molt stage detection for the soft-shell crab industry and fish fillet species identification without the need for DNA sequencing. More recently, work on has started on developing novel growth promoting and immune stimulating feeds for crustaceans and a kit to screen and prioritize development of potential sources of immune-stimulants from farm wastes. For agriculture, an innovative method of surveying genetic variation and finding “heirloom” varieties of coffee and cacao without DNA sequencing has been developed. Half of the talk will present examples of the research and the products, the other half will discuss the benefits and challenges in organizing interdisciplinary teams and developing collaborations with other research institutions, the local governments and NGOs in defining projects and delivering on milestones are discussed.

Jose Isagani Janairo, PhD
Associate Professor, Biology Department
Head, Biological Control Research Unit
CENSER

About the speaker:

Dr. Jose Isagani Janairo received his BS Biochemistry (cum laude) and MS Chemistry degrees at De La Salle University, Manila. He earned his Doctorate degree in Chemical Sciences as a Monbukagakusho scholar at Hokkaido University for his work about bionanotechnology. Dr. Janairo has received awards and recognitions from the ASEAN, Hokkaido University, Chemical Society of Japan, Japanese Biochemical Society, Japan Society for the Promotion of Science, the Clark Memorial Foundation, and the National Academy of Science and Technology, Philippines. Dr. Janairo has also been selected by the UN Environment as one of the lead authors in drafting the youth oriented version of the Asia-Pacific regional assessment. At present, Dr. Janairo is also the Associate Publisher of the DLSU Publishing house. His current research interests lie in chemical ecology and semiochemistry.

Volatilomics: reinventing semiochemistry for the challenges of modern agriculture and public health

Jose Isagani B. Janairo, PhD
Biology Department, College of Science, De La Salle University
Biological Control Research Unit, Center for Natural Sciences and Environmental Research, De La Salle University

Abstract: The volatile chemical profiles of plants and insects possess rich information that can be used to enhance agricultural productivity, and prevent vector-borne diseases. However, the immense data produced from semiochemical experiments can be challenging and confusing to interpret. This lecture presents the adoption of “omics-like” strategies for the elucidation of volatile chemicals involved in plant stress response and behavior modification of insects. Through this approach, potential chemical attractants for the coconut scale insect, and the cacao mirid bug were identified, along with infestation response of their respective hosts. This lecture will also discuss the utility of machine learning, which was used for the screening of mosquito repellents.

About the speaker:

Dr. Esperanza C. Cabrera is a Full Professor 10 and University Fellow of De La Salle University, Manila. She earned her BS Medical Technology degree from the University of Santo Tomas, Summa cum laude, MSPH in Medical Microbiology from the University of the Philippines-College of Public Health, and PhD in Biological Sciences from the University of Santo Tomas. Her research interests are in the area of medical microbiology, notably on the virulence and transferable multiple drug resistance of healthcare-acquired and community-acquired bacterial pathogens. She has also been working on the benefi cial aspect of microbes, involving studies on the bioactivities of probiotics, including their antimicrobial activities and cytotoxicity to cancer cells. She was awarded as the Philippine Professional Regulation Commission Outstanding Professional in Medical Technology for 2018, one of the 2017 Ten Outstanding Filipinos by Metrobank, and was also the recipient of the Dr. Alfredo Pio de Roda Excellence (Lifetime Achievement) Award given by the Philippine Association of Medical Technologists in the same year. In addition, she has been recognized for her teaching and research in the area of Microbiology with awards such as the Outstanding Microbiologist Award and the Professor William L. Fernandez Excellence in Microbiology Teaching Award, both given by the Philippine Society for Microbiology Inc., Crisanto G. Almario Memorial Award for Research from the Philippine Association of Medical Technologists, University of Santo Tomas Graduate School Outstanding Alumna award, St. Stephen's High School Outstanding Alumna award , De La Salle University's St. Benilde Romancon Pillar Award for Excellence in Teaching, and Outstanding Teacher awards of the DLSU Students' Search for Outstanding Teachers from the De La Salle University.

Carbapenemase-Producing Enterobacteriaceae
What's so alarming?

Esperanza C. Cabrera, PhD
Biology Department, College of Science
De La Salle University, Manila

Abstract: Carbapenems are β-lactam antibiotics that bind to penicillin binding proteins, thereby preventing the crosslinking of the tetrapeptide chains during peptidoglycan synthesis and subsequently, the formation of an intact cell wall. The most clinically-administered carbapenems include meropenem, imipenem, ertapenem and doripenem. Since they are the favored last resort drugs for treatment of multiple drug resistant bacterial infections, the spread and increase in the prevalence of carbapenem resistant bacterial strains present a serious global health problem. Carbapenem resistant enterobacteriaceae (CPE) was classified in 2013 by the US Centers for Disease Control and Prevention as one of the three antimicrobial resistant threats under the highest category of "Urgent Threats". CPE belong to either one of the following categories: 1) non-carbapenemase-producing-carbapenem-resistant organisms that have reduced susceptibility to carbapenems due to expression of cephalosporinases (AmpC and ESBL) coupled with defects in drug uptake, and the 2) carbapenemase-producing resistant strains. Between the two types, strains of carbapenemase-producing Enterobacteriaceae are of graver public health concern, since the carbapenemase genes are often located on mobile genetic elements that are readily transferred horizontally among enterobacteriaceae and other Gram-negative species, increasing the potential for worldwide spread. Moreover, strains harboring carbapenemases also carry resistance genes for multiple antibiotic classes, resulting in limited therapy options. Carbapenemases belong to Ambler Class A or D serine β-lactamases, or to Ambler class B metallo-β-lactamases. Essential to the treatment and control of carbapenemase-producing organisms (CPOs) is their proper laboratory identification using phenotypic and nucleic acid–based detection assays that identify carbapenemase activity directly or their associated molecular determinants. Prevention of the transmission of these organisms is a major public health endeavor, and requires coordinated international participation.

Zeba F. Alam, PhD
Biology Department, COS
De La Salle University

About the speaker:

Dr. Zeba Alam obtained her Ph.D in Radiation Genetics and Chemical Toxicology from School of Life Sciences, Jawahar Lal Nehru University, India and Sylvius Laboratorium, Department of Radiation Genetics and Chemical Mutagenesis, Wassenarseweg, Leiden, The Netherlands. Dr. Alam has worked in various positions in different countries such as India, Netherlands, Sri Lanka, and Philippines. She has published several scientific and research papers in various international journals including chapters in books related to Biotechnology and Genetic Engineering, Genotoxicity and Environmental Biomonitoring. Her area of specialization includes Biotechnology, Molecular Biology, Cytogenetics, Genotoxictiy, and Environmental biomonitoring. Dr. Alam has authored and launched website: www.biotechnology4u.com- on topics related to biotechnology, Genetic Engineering, and molecular biology to help students with on line notes with the aim of imparting latest information on research and development in this field.

Environmental Biomonitoring: Quantification of Genotoxicity Using Different Biomonitors to Assess the Toxicity Status of the Environment

Zeba Alam, PhD
Biology Department, College of Science
De La Salle University

Abstract: With an eighth of the country's rivers too toxic for human and animal ingestion and struggling to support life forms and the various contaminants in the air and water reported to contribute to one third of the reported illnesses in the population, Philippines is struggling to mitigate the effects of pollution on the environment and human population in recent years. The adverse impact of water pollution alone is more than USD 1.3 Billion as estimated by World Bank and Philippine Environment Monitor. Since many contaminants have been found to cause DNA damage, the genotoxicity assessment is very important in the environmental safety evaluation to protect human and animal health. The FDA recommends using different assays to be able to present accurate and complete information regarding the genotoxicity potential of an agent, whether it is a substance or a whole environment. Environmental biomonitroing using a variety of parameters and assay systems are being used in our laboratory to collect the data regarding the genotoxicity status of the aquatic and terrestrial environment specific to *Metro Manila*. The *Allium cepa* assay, the micronucleus assay using *Swiss albino* mouse, the erythrocyte micronucleus assay in Nile tilapia (*Oreochromis niloticus*), in combination with the heavy metal analysis were used to evaluate the genotoxicity potential of water bodies, as well as of e-waste dumpsites in and around *Metro Manila*. Further, the human scalp hair was used as biomarker to assess the extent of heavy metal exposure to informal recyclers engaged in e-waste recycling activities. The data obtained by using different assay systems can be used to create a centralized repository or data bank of genotoxicity potential/status of various contaminants, which can help the various stakeholders to take effective measures to reduce the toxicity levels in the country.

BILLY JOEL M. ALMARINEZ, Ph.D., L.P.T.
Biological Control Research Unit
CENSER, DLSU

About the speaker:

Billy is an entomologist, currently working as postdoctoral research associate under the Biological Control Research Unit (BCRU) of De La Salle University. He obtained his Master of Science in Biology and Doctor of Philosophy in Biology degrees from De La Salle University in 2009 and 2016, respectively. Previous and current research projects of the BCRU which he has been working on focus on integrated pest management (IPM) with emphasis on biologically-based pest management strategies, particularly biological control using parasitoids and predators against agricultural and urban insect pests. Billy is one of the entomologists who discovered, reported the first record of, and taxonomically described a native species of parasitic wasp, *Comperiella calauanica* Barrion, Almarinez & Amalin, that has been found effective as a biological control agent against the "cocolisap", *Aspidiotus rigidus* Reyne.

Billy is also a licensed professional teacher, having obtained his Bachelor of Science in Biology for Teachers degree from the Philippine Normal University in Manila in 2006 and successfully passing the Professional Regulation Commission's (PRC) Licensure Examination for Teachers in the same year. He has taught tertiary-level Biology courses at the Philippine Normal University, the Technological University of the Philippines, and De La Salle University. He is a member of the Philippine Association of Entomologists (PAE) and the Biology Teachers Association of the Philippines (BIOTA), and has also been involved with the Philippine Association of Physics and Science Instructors (PAPSI) as invited speaker for Biology in trainings for K to 12 STEM teachers.

A Currently "Endangered Species" is Vital in IPM: Revisiting a Lesson Learned From the "Cocolisap" Story

Billy Joel M. Almarinez
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Abstract: Traditional or alpha taxonomy has recently been considered a "fading field". More biologists now prefer to work using more modern DNA-based techniques, while fewer young scientists and students choose to depend on morphological and field studies for taxonomy or systematics researches. For this reason, taxonomists are now ironically being called an "endangered species". Correct identification of organisms is most important in disease and vector control in medicine, and in pest and disease management in agriculture. The outbreak of the coconut scale insect, *Aspidiotus rigidus* Reyne, in the Southern Tagalog region of Luzon Island, Philippines from 2010 to 2015 is a notable case that highlights the importance of traditional taxonomy in integrated pest management (IPM). Initial misidentification of the pest inevitably led to the implementation of incorrect approaches in attempts at biological control of the very destructive diaspidid pest. Field studies and alpha taxonomy was what eventually led to the discovery of the encyrtid parasitoid, *Comperiella calauanica* Barrion, Almarinez & Amalin, which is now recognized as the most effective biological control agent against *A. rigidus*. At present, IPM-themed research projects and a number of graduate-level courses in De La Salle University have included taxonomic studies as an integral part. It is hoped that these recent developments will eventually lead to the revival of the science and art of alpha taxonomy in the Philippines.

Chona Camille Vince Cruz - Abeledo
Associate Professor
Biology Department, College of Science
De La Salle University

About the speaker:

Chona is a faculty of the Biology Department and a member of the Practical Genomics Laboratory at the De La Salle University. Their goal is to help in the democratization of science and the development of practical technologies for the advancement of Philippine agriculture and fisheries. Through PGL, she has worked on the systematics of mangrove crabs, where they won an Outstanding Research & Development Award in 2015 for combining the use of molecular markers and image analysis to develop a semi-automated method of species identification for juveniles. Her other research interests are in population genetics and molecular biology. With more than 10 years as an educator, her advocacy is in the improvement of communications between the scientific community and other sectors of society. She holds a PhD in Biology from the De La Salle University, with a Fulbright dissertation grant to the University of Washington in Seattle. She also has a Master of Science degree in Environment and Natural Resource Management and a Bachelor of Science degree in Molecular Biology and Biotechnology from the University of the Philippines.

Sifting in the mud: Lessons from the mangrove crab

Chona Camille VinceCruz-Abeledo
Biology Department, College of Science
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Abstract: Seven years of research on the morphology and genetics of the mangrove crab (*Scylla* spp) has given rise to discoveries and innovations in species identification in adults and juveniles, population genetic structure of *Scylla serrata,* and the characterization of its sex phenotypes. The presentation will discuss the use of morphometric and genetic markers in the revision of the taxonomic key for the genera. It will also tackle the use of image analysis and DNA barcoding in the unveiling of a morphological counterpart for species identification in juveniles – and the eventual creation of a mobile application for use of fishermen. Protein profiles and preliminary results of genomic characterization of the three market-recognized sex phenotypes of mangrove crabs will also be discussed. Finally, the presentation will also include a report on the use of morphological, mitochondrial and nuclear genetic markers to detect the population genetic structure of the king mangrove crab in the Philippines. These studies were done with the backdrop of Philippine aquaculture practices and the drive of the Practical Genomics Laboratory to create low-cost innovations that can be useful for our fishers and farmers. Apart from these scientific findings, lessons on tenacity, collaboration, persistence and communication will be relayed for the benefit of young scientists and graduate students for them to appreciate the complexities and the beauty of scientific research in the country.

GRADUATE STUDENTS RESEARCH PRESENTATION

Quorom Sensing Quenching Activity of *Andrographis paniculata* compounds on biofilm formation of clinical isolates of *Pseudomonas aeruginosa and Acinetobacter baumannii*

Ann Margarete T. Tan[1,3], Glenn G. Oyong[2], and Esperanza C. Cabrera[1,2]
[1]Biology Department, College of Science, De La Salle University-Manila
[2]Molecular Science Unit Laboratory, CENSER, De La Salle University-Manila
[3]School of Medical Technology, Centro Escolar University

ABSTRACT

Andrographis paniculata, a tropical plant native to India, Sri Lanka and Southeast Asia, has been used as an effective remedy to a wide variety of illnesses in Traditional Chinese and Ayurvedic medicine. Extracts and pure compounds of *Andrographis paniculata* roots and leaves such as xanthones, flavonoids and diterpenes have been isolated and shown to have medicinal properties. Among these is their anti-microbial activity as a result of their quenching effect on bacterial quorum sensing activity. This is of interest to public health due to the continuous increase in the prevalence of multiple drug resistant (MDR) bacteria and the decline in commercially available antimicrobials capable of treating MDR bacteria. One of the mechanisms for the pathogenesis of MDR bacteria such as *Pseudomonas aeruginosa and Acinetobacter baumannii* is their ability to produce biofilm. These bacteria communicate by sensing and releasing signal molecules that enable them to participate in quorum sensing-controlled activities such as biofilm formation. Quorom sensing is based on cell population density wherein the presence of sufficient bacterial concentration (quorum) allows for bacterial activities such as cell attachment, genetic exchange and regulation of gene expression. Hence, quorom sensing inhibition (QSI) can be used as an adjunct target to control the virulence and pathogenesis of MDR bacteria.

The study determined the inhibitory activities of *A. paniculata* root and leaf compounds on quorum sensing-mediated pigment production of *Chromobacterium violaceum* and biofilm formation of clinical isolates of *P. aeruginosa and A. baumannii.* The compounds tested were andrographolide, 14-deoxyandrographolide, 14-deoxy-12-hydroxyandrographolide, neoandrographolide, 1,5-dimethyl-1,5-cyclooctadiene, 5,2'-dihydroxy-7,8-dimethoxyflavone(SKI) and lupeol. The study also determined the effect of the compounds on the expression of the *las*R gene in *P. aeruginosa* isolates.

Violacein inhibition assay was used to determine the inhibition of *C. violaceum* pigment production when exposed to the *A. paniculata* compounds. Crystal violet assay was used to determine the biofilm formation activity of MDR *P. aeruginosa* and *MDR A. baumannii* isolates. Sub-inhibitory concentrations of the *A. paniculata* compounds (0.156, 0.313, 0.625, 1.25, 2.5, 5mg/mL) were tested to determine their quorum sensing-quenching activity as measured by their effects on biofilm formation of *P. aeruginosa and A. baumannii.* The effect of the compounds on the expression of *las*R gene was determined using qRT-PCR.

Andrographis paniculata compounds inhibited the quorum sensing-mediated pigment production of *C. violaceum* as shown by its colorless growth in the presence of the test compounds. Of the 16 *P. aeruginosa and A. baumanii* clinical isolates tested, six (38%) were classified as strong biofilm producers, three (19%) as moderate, four (25%) as weak and three (18%) as non-biofilm formers. Quorum sensing inhibition analysis showed that nine of the 16 isolates of *P. aeruginosa* and *A. baumannii* isolates treated with individual *A. paniculata* compounds gave a significant decrease (with a p-value < 0.05) in biofilm formation as compared to the untreated isolates of *P. aeruginosa* and *A. baumannii.* qRT-PCR data on the relative expressions of the quorum sensing-regulated gene

*las*R in MDR *P. aeruginosa* clinical isolates 22 and 247 showed that *A. paniculata* root and leaf compounds, specifically 14-deoxyandrographolide, 14-deoxy-12-hydroxyandrographolide, neoandrographolide, 1,5-dimethyl-1,5-cyclooctadiene and lupeol significantly repressed the transcription of *las*R gene with a two-fold change. This shows their ability to downregulate the expression of the *las*R gene, confirming that they have the capacity for quorum sensing inhibition activities.

Andrographis *paniculata* root and leaf compounds, specifically 14-deoxyandrographolide, 14-deoxy-12-hydroxyandrographolide, neoandrographolide, 1,5-dimethyl-1,5-cyclooctadiene and lupeol, showed quorum sensing inhibitory activities for the carbapenem-resistant MDR *P. aeruginosa* isolates as demonstrated by the inhibition of biofilm formation and confirmed by the repression of the *las*R gene expression in the isolates.

Keywords: *Andrographis paniculata, Pseudomonas aeruginosa*, *Acinetobacter baumanii,* quorum sensing, biofilm, *Chromobacterium violaceum*

Assessment and Transmission of *Wolbachia* in *Aedes* spp. Mosquitoes (Diptera: Culicidae) In Selected Barangays of General Trias (Cavite), Lucena City (Quezon Province) and Selected Cities of Metro Manila, Philippines

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ABSTRACT

Mosquito-borne diseases, like dengue virus is becoming important as they cause a great death percentage in different parts of the world. *Aedes* species are major and crucial vector in the transmission of the dengue fever as well as chikungunya and zika. In dealing with these arboviruses, biological approach is encouraged to help lessen and eliminate the diseases. *Wolbacahia,* an alpha proteobacterium is a candidate beneficial microbe managing the population of *Aedes* mosquitoes which is reported as mutualist or parasitic microbe. The goal of the study is to assess the presence of *Wolbachia* in *Aedes* spp. In the Philippines as well as its transmission. In this study, mosquito eggs were collected in selected barangays of General Trias, Cavite and Lucena City, Quezon and selected cities in Metro Manila. The eggs were reared to adult and only *Aedes* species were selected. Then adult *Aedes* mosquitoes were mated and reared using human blood via artificial membrane feeding for an hour per day for 3 days to get the 2nd generation for testing the vertical transmission of *Wolbachia* through DNA analysis.

Keywords: *Wolbacahia, Aedes mosquito, Dengue virus, DNA*

Development of Nano-Biosensor Technology in Disease Surveillance and Diagnosis of Economically Important Crops

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ABSTRACT

Plant diseases are one of the causes of low agricultural productivity worldwide. These infectious plant diseases are caused by pathogenic microorganisms such as bacteria, fungi and viruses. Early detection of the causal organisms plays a vital role in plant health monitoring and allows management of plant disease. Current methods used to detect pathogens in plants includes immunological and DNA-based techniques which are time-consuming and require complex instruments, being not suitable for in situ analysis. In this project, rapid detection technologies will be developed to effectively support biosurveillance of plant diseases in the Philippines. The biosensor technology involves a two-step process. First, functionalized magnetic nanoparticles (MNP-F1) will be used to extract and concentrate the microorganisms from plant samples using a simple magnet. Also, this step will serve as a rapid screening process for the detection of presence or absence of the causal organism. Second, a DNA-based nanobiosensor detection system will be developed for the electrochemical detection of extracted DNA of the plant pathogens. The DNA probes selective for each pathogen will be designed based from their targeted genes. After disease detection, appropriate disease control measure will be employed for the disease and the insect vector if transmitted by a vector.

Keywords: biosurveillance, nanoparticles, nanbiosensor, DNA probes

Use of semiochemicals in the control of the cacao mirid bug, *Helopeltis bakeri*

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Abstract

The cacao industry in the Philippines is a rising market that continues to increase in demand. However, local production is threatened by pest infestations that affects local cacao farmers and their livelihood. The insect, *Helopeltis bakeri* poppius or the cacao mirid bug is one of the major pest of cacao in the Philippines. To control the increase in population of these insect pest, biological control needs to be employed. One control method is the use of semiochemicals. In this study, the volatile chemical profiles of the feeding hosts of the cacao mirid bug were obtained using solid phase microextraction coupled with gas chromatography – mass spectrometry. Two different types of SPME fibers, 100 um Polydimethylsiloxane and 50/30um CAR/PDMS/DVB fibers were used and optimized to collect the kairomones. From the profiles, a common bicyclic sesquiterpene compound was observed. Preliminary olfactory analysis using lab reared CMB confirmed positive attraction towards the identified compound eliciting 50-90% attraction with an effective concentration of 4-23 microgram per cubic centimeter. Additionally, the mating behavior of the CMB showed that a female 96 hours after molting is considered to be sexually mature and ready for copulation. The suspected sex pheromone, alpha-pinene, was detected in the female abdomen. Bioassay of alpha-pinene would be assessed for the attraction of the male CMB.

Keywords: *Helopeltis bakeri* poppies, gas chromatography, kairomones, alpha-pinene

| ENTREPRENEURSHIP, BUSINESS & MANAGEMENT

EBM-I-001

Markovian Transition of Candlesticks in Stock Markets

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Abstract: Technical analysis of financial markets rely on charts that contain four key information about price movement during a trading period. The open, close, highest and lowest prices are all contained in a chart element called the candlestick. The direction of price movement within a trading period are represented through the color of the candlestick, while the difference between open and closing prices are exhibited as the body of the candlestick. Information about the highest and lowest prices are contained in the upper and lower shadows, respectively. Relative sizes of the body and the shadows as well as the color of the stick are used in this study to classify the candlesticks into eight types. Transition of candlestick types can be described by a Markov process, with the transition matrix elements being the conditional probability P(Sn|Sn-1) that candlestick type Sn at day n appears if candlestick type at day n – 1 is Sn-1. The conditional probabilities are determined empirically through cross tabulation of successive-day candlestick types for ten stock market indices using 20-year data. It is found that candlestick transition depends more on the form rather than the color of the candlestick. The transitions are similar across all but one markets, the exception being the Philippine stock exchange index. As the transition depends only on information about the immediate past, information about an initial state is totally washed off within five trading days. The most commonly occuring candlestick is found to be those with short upper and lower shadows, and the least common are those with short lower but long upper shadow.

Keywords: stock market; Markov process; Japanese candlestick

EBM-I-002

Predictive Value of Candlestick Type on Price Movements in Stock Markets

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Abstract: Movements of prices in stock markets during a single trading day are typically visulalised using candlestick charts, and technical analysis of the market are based on patterns found in time series of these candlesticks. Candlesticks have three parts which reflects the opening, closing, highest, and lowest prices during the trading day. The body, which describes the difference between opening and closing price, is colored light if closing is higher than opening, and dark otherwise. The upper shadow has a length equal to the distance of the highest price of the day from the upper edge of the body. The lower shadow reflects the distance of the lowest price from the lower edge of the body. Candlesticks may be classified according to the relative sizes of the body and the shadows, and the body color. In this paper, we looked at the reliability of using candlesticks to predict movement in prices by looking at the probabilities of up or downward movements of prices conditioned on the appearance of various types of candlesticks. Probabilities are calculated empirically from the co-occurrence of candlestick of each type and the up or downward movement of prices in the succeeding trading day, using data from ten markets over a 20-year period. Boxplot analysis of the data shows that candlesticks with long upper shadow and short lower shadow relative to the body length, regardless of color, generally signal an upward movement in prices. Although the probability, which ranges in the higher fifties, points to a still large possibility of error in prediction, this nevertheless indicates a possibility that combinations of

candlesticks can signal trends in the market movement.

Keywords: technical analysis; price action; Japanese candlestick

EBM-I-003

A Conceptual Paper on Relationship Management Skills: Towards the Development of Students Career Program

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Abstract: The world of work is uncertain. Hence, universities and colleges are tasks to help the students acquire vital skills required in the workplace. Preparing students for future career is essential tool for employment success. A career development program has been one of the means in promoting and enhancing positive students' attitude toward school, increasing student engagement, and formulating plans before and after graduation. It is this concept paper attempts to explore the role of relationship management skills using the Social Emotional Theory (SEL) as its framework, significantly with a goal of developing an effective career program for students.

Keywords: college students, social and emotional learning, relationship management skills, career development program

EBM-I-004

E-COFS: An Order Fulfillment System and E-Commerce Website for Hem+Kontor

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Abstract: Order fulfillment services have been prominent, mainly in the manufacturing industry, as businesses started the trend of catering to customized products. Hem+Kontor, a furniture manufacturing company, produces customized furniture by fulfilling orders of businesses and residential units that require their services. Even as the company's current order fulfillment process allow them to keep close connections with their regulars and net new clients through word of mouth, there are instances wherein delays in fulfilling client requirements are happening. Problems such as difficulties in scheduling deliveries due to the lack of consideration of a truck's coding and not buying raw materials from the optimal supplier based on location and availability contribute to the order fulfillment delay. In addition, Hem+Kontor also identifies a marketing opportunity in expanding their customer base by developing an e-commerce website that allows end customers to order furniture directly and have various payment methods available. E-Commerce Website and Order Fulfillment System (E-COFS) aims to address the delays and make Hem+Kontor's order fulfillment process flow in a cycle while addressing the opportunity of creating a website. E-COFS will utilize the presence of a client interface that allows interaction with the company's order fulfillment process. The system will be implemented with Laravel, a PHP framework, along with MySQL database to display information to the web pages with HTML. Overall, the proposed system is able to address the delay in fulfilling client requirements because of the presence of a controlled order form, organized delivery schedule, and regulated supplier suggestions.

Keywords: E-commerce; IT; Manufacturing; Order Fulfillment

EBM-I-005

An Empirical Study of Goodwill, Other Intangible Assets, and Disclosure Index on Cash Flow Activities of Philippine Publicly-Listed Companies over the financial reporting period 2013-2017

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Abstract: This study highlights the known-fact that cash is king---one thing that remains unchanged in this evolving economy, and a useful parameter that reflects sustainability of a business. While many studies have already proven the link of intangible assets with traditional performance measures, there are only limited studies that have assessed its impact on cash flow management. Accordingly, this study aims to shed a new light as it examines the impact of goodwill, other intangible assets, and disclosure indices on cash flow activities from operating, investing and financing, particularly those of publicly-listed companies in the Philippines over the financial reporting period 2013-2017. Using panel regression analysis, findings revealed that across all sectors, goodwill has a positive impact on cash flows from operating activities, while negatively influencing investing and financing cash flows. Analysis further revealed that other intangible assets have a negative effect on activities only from investing cash flows. Finally, disclosure indices exhibited a significant impact on investing and financing cash flows. Furthermore, the same method was used to illustrate sector-specific empirical analysis, dividing the samples into five different sectors, namely, industrial, property, services, mining and oil, and holding firms sectors. Findings likewise showed that goodwill, other intangible assets, and disclosure indices exhibited varying effects on the cash flow activities which were attributed to the differences in the nature of the businesses of each sectors. The results of the study will significantly benefit various stakeholders, such as the corporate of companies under each sectors, auditors, government and standard setters, and academe and future researchers.

Keywords: Goodwill; other intangible assets; disclosure indices; cash flow activities

EBM-I-006

Development of Risk Assessment for High-Rise Building Investment Project in Metro Manila Based on Weighted Simulation Approach

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Abstract: Today's high-rise building projects play a vital role in the development of the Philippine Construction Industry. According to the latest survey of Philippines GDP from construction this June of 2018, the average Gross Domestic Product (GDP) in the industry is PhP 147425.69 Million from 2008 until 2018, reaching as high as PhP 230724.23 Million in the second quarter of 2017. Hence, the risk involved in this growth demand a major responsibility in the part of construction sector in providing reliable risk assessment method. However, traditional techniques of risk assessment for high-rise building projects in the Philippines today are insufficient in measuring and evaluating risk factors which produces a less favourable outcome than what is expected. There is a high level of risk occurrence when investments such as high-rise buildings are planned without regards to uncertainties, risks or both. Any major loss as a consequence of risk occurrence will delay the project completion and eventually put at risk the owner's financial survival. This paper will develop a decision support tool which allows correct factor identification and assessment of risks associated in high-rise building construction. Ultimately, the study will serve as an invitation for further development of risk assessment techniques which is suitable for urban populated areas in the Philippines with high exposure to risk due to rapidly increasing demand of high-rise building construction projects. More significantly, the findings of the study can be used by property developers in project selection, designers in material selection

and local government units in assessing building permit applications. Furthermore, the outcome of the study will also arm construction industry sector in formulating codes and standards, innovating new ways of risk assessment practices and proactive ways of promoting good risk management practices.

Keywords: high-rise building; investment; risk factors; risk assessment

EBM-I-007

Forecasting Philippine Stock Market Prices Using ARIMA-GARCH Models

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Abstract: A myriad of studies have shown to forecast stock prices using time series analysis efficiently from different countries and industries. For Philippine financial markets, most studies have only focused on the PSEi (Philippine Stock Exchange index) series data and not much study has explored on forecasting individual public companies. Short term investors or day traders, who buy and sell stocks within the day or week, would not be able to utilize PSEi forecasts as it is not tradeable. This paper aims to apply time series analysis to three public companies listed in the Philippine Stock Exchange Inc. These are Ayala Land Incorporated (ALI), Banco de Oro (BDO), and Jollibee Foods Corp. (JFC). The models Autoregressive Integrated Moving Averages (ARIMA), Autoregressive Conditional Heteroscedasticity (ARCH), and Generalized ARCH (GARCH) were explored in describing these financial series. Due to the highly volatile characteristic of stock markets, volatility models were confirmed to be the best fit for ALI, BDO, and JFC, particularly the ARCH(1)-T, ARCH(2)-T, and ARCH(1)-N respectively. The fitted models were able to capture the stock market volatility and produce small forecast errors for closing prices. To assess the practicality of the forecasts in day trading, the closing prices were forecasted and anticipated from March 25-29, 2019. The results show that the ARCH models were able to forecast the week's closing prices with a low mean average percentage error (MAPE) of 1.57% for ALI, 1.87% for BDO, and 0.77% for JFC. Thus, there is a potential of the models to be used by traders for risk management and decision making for their daily stock trading activities

Keywords: Time Series Analysis, ARIMA, GARCH, Philippine Stock Market

EBM-II-010

Industry 4.0 Readiness of Accounting Education: Analyzing CHED's accounting program standards

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Abstract: As Industry 4.0 disrupts workflow proces Abstract: ses and business models, the accounting profession needs to change and adopt to these new realities. This study evaluated the program policies, standards and guidelines of the four (4) accounting programs issued by the Commission on Higher Education in 2017 in relation to their readiness to address the challenges of Industry 4.0. Using the professional quotient (PQ) model, the study concludes that by design, the curricula are geared up for the challenges of Industry 4.0. However, the study recommends program implementation should consider the expanding the learning activities and experiences of the students beyond the traditional classroom and integrate the current advances in technology to increase the readiness of program graduates in an Industry 4.0 world.

Keywords: Accounting education in Industry 4.0; professional quotient; Philippines

EBM-II-011

Creating a Framework for User Acceptance for the IT-Based Telecommuting Work

Arrangement for Information Technology (IT) Workers

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Abstract: This research paper creates a user acceptance framework for Information Technology (IT)-based telecommuting or telework work arrangement combining three Information Systems (IS) theories: process virtualization theory (PVT), technology acceptance model (TAM), and the task-technology fit theory (TTF). This study uses the PVT theory as its main theory along with TAM and TTF. The framework presents an assessment of the adoption process of telecommuting work arrangements using the TAM model which is interpreted as the observable willingness of individuals to make use of information technology while working on the tasks to be accomplished.

Keywords: Telecommuting; Process Virtualization Theory; Technology Acceptance Model; Task-Technology Fit

EBM-II-012

A Multi-Case Study of Change Facilitators: The Case of LSEED Program and Select Philippine Social Enterprise Models

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Abstract: This paper is a qualitative and descriptive research, highlighting the learnings from the implementation De La Salle University's social enterprise incubation program called LSEED. The study looks closely at the effort of an academic institution in working with local government, non-government organizations,people's organizations and the private sector in creating community social enterprises addressing social problems. Moreover a parallel review of selected social enterprise models in the countryside was also conducted in order to provide a roadmap that will help budding social entrepreneurs become facilitators of sustainable and inclusive development.

The study has revealed the following: (1) Initiatives in social entrepreneurship should be reflective of the result of community based monitoring system and/or other profiling mechanisms led by or done with local government (example: business scoping); (2) Key stakeholders in social entrepreneurship are not exclusive to the business sector and the academe. Local government support plays a very critical role in institutionalising SE efforts towards community development (example: incubation facilities in the community); (3) Partnership with academe and business sectors under the concept of corporate social responsibility and social engagement should be aligned with the agenda of the local government units and supportive of the United Nations SDG; (4) Livelihood and income-generating programs of local government should try to put in place sustainability mechanisms to ensure clearer impact on the socio-economic aspect as well as the transformational roles of the community. Some examples are as follows: (a) Product-development to market linkages; (b) training-driven program to enterprise-creation program; (c) thrust based to needs and market-based initiative.

Keywords: Qualitative-descriptive Research; Social enterprise incubation; LSEED; Academic Institution Working with Government; Creating community social enterprises; Addressing social problems; Social enterprise model; Roadmap; Help budding social entrepreneurs

EBM-II-013

What Sets Them Apart? The Entrepreneurial Profiles of Serial and First Time Entrepreneurs

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Abstract: Business failure or discontinuation is a venture life cycle stage that all entrepreneurs dread to reach. This paper used the Global Entrepreneurship Monitor (GEM) Philippine data for 2015 to provide the profile of the individual characteristics exhibited by both first time entrepreneurs and serial entrepreneurs. The Filipino entrepreneurs' social capital and experience in terms of educational level, gender and age, perception of opportunities, level of fear of failure, skills and knowledge, and their past history of being informal or angel investors were all dichotomized between entrepreneurs who have failed (serial entrepreneurs) with respect to those who have not failed (first time entrepreneurs). The study yielded that they differ in terms of skills, their role as angel investors, and the role fear of failure in starting a business.

Keywords: serial entrepreneurs; fear of failure; angel investors; business failure

| FOOD, NUTRITION AND HEALTH

FNH-I-001

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Abstract: The study evaluated the performance of the school health personnel in the Department Education - of Tarlac Province during the 2013-2014, 2014-2015 and 2015-2016. The evaluation study used input-output evaluation model. It further utilized the evaluation scale, interview and observation to facilitate the data gathering. Records and data from the School Health Section of DepEd-Tarlac Province and Basic Education Information System (BEIS), DepED memoranda and orders were used as sources of data. Tables were utilized to analyze the data.
The study found out that a significant majority of the school health personnel have very satisfactory rating for three school years. 2013-2016 while the ratio of nurses to the pupils being served was 1,000 - 10,000 while for dentists and dental aides are 16,000-30,000 learners. There were problems encountered by the school health personnel which could be addressed will facilitate the improvement of delivery of the health and nutrition services, implementation of the health and nutrition programs and public health management as well.

Keywords: Performance Evaluation, School Health Personnel, Public Health Management, School Health and Nutrition Programs

FNH-I-002

Preparation and Characterization of Carbon Nanodots from Natural Polysaccharides and its Application as Photo Sensitizer in Solar Cell

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Abstract: The study explored the utlization of the abundant natural polysaccharides as precursor for carbon nanodots (CNDs) using hydrothermal carbonization and its potential as photosensitizer in solar cell. TEM revealed spherical shape of Cladophora cellulose CNDs (5.79 ±1.60 nm) and crystalline structure (d-spacing of 0.205 ±1.60 nm) indicating graphitic nature. AFM revealed the spherical shape and polydisperse size of the CNDs. FTIR and TOF-SIMs analysis confirmed the presence of hydroxide and carbonyl functional groups on the CND surface. Optical characterization using UV-Vis and Fluorescence Spectroscopy supported the structural and functional group analysis of carbon nanodots suggesting its potential as photosensitizer because it absorbs in the visible region up to 600 nm. The sensitized solar cell fabricated using CNDs as dye replacement showed the potential of CNDs as photosensitizer albeit in lower yields compared to the controls.

Keywords: Carbon nanodots, polysaccharide, cellulose, solar cell

FNH-I-003

Prevalence of soil-transmitted helminthiasis among Aetas in Brgy. Villa Maria, Porac, Pampanga

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Abstract: Soil-transmitted helminth (STH) infections remained as a public health issue in the Philippines, majority infecting individuals in impoverished regions such as indigenous peoples. Indigenous peoples including Aetas are reported by WHO to be highly vulnerable to parasitic infections particularly STH. Despite this report, there is

insufficient data about soil-transmitted helminthiasis among Aetas. This study aimed to determine the prevalence of soil-transmitted helminths and its infection rates among Aetas in Brgy. Villa Maria, Porac, Pampanga. Fecal samples of 223 Aetas were processed by Formalin Tween concentration technique and examined microscopically. The overall prevalence of STH infections among Aetas is 71.3% (159/223). In terms of infection rates, 49.7% (79/159) had single infections while 50.3% (80/159) had mixed infections. Ascaris spp. is the most prevalent STH by single infections while Ascaris spp. with Trichuris spp. are the most common STH by mixed infections. Generally, STH are both present in single and mixed infections among Aetas. The occurrence of STH in a community suggests continues practice of open defecation or improper disposal of human and animal waste that continually contaminates the soil. It also indicates the poor practices of sanitation and hygiene had effectively transmitted STH infection within the community.

Keywords: Soil-transmitted helminthiasis; Aetas; Formalin Tween concentration technique; Prevalence; Infection

FNH-I-004

Professional Resiliency and Self-Care Practices of Filipino School Counselors

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Abstract: School counselors play an integral role in the efficient and effective delivery of guidance and counseling services. Although school counselors are vulnerable to heightened
risks of stress, fatigue, burnout, and poor mental health due to the nature of their work, they are also protected by their sheer professional resiliency and self-care practices. This study examined the level of professional resiliency and self-care practices among a sample of 51 Filipino school counselors. The counselors interviewed were 21-59 years of age, most of whom (86%) were females. Findings reveal that, across a number of sociodemographic characteristics (i.e., age, gender, marital status, educational attainment and grade-level assignment); and
across four subscales (i.e., professional vitality, personal vitality, professional stress, and personal stress), school counselors were found to have a high level of professional resiliency and of self-care practices. The data suggest that, rather than be weakened by the challenges stemming from their work, the school counselors appeared to have been strengthened in performing their job as a result of their professional resiliency and effective self-care strategies. The implications of these findings for counselor development program are
immense.

Keywords: guidance and counseling; resiliency; self-care; Filipino school counselors

FNH-I-005

Antihyperlipidemic Effect Of Sarabat (*Diplazium polypodiodes blume*) Aqueous Extract In Diet-Induced Hyperlipidemic Rats

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Abstract: Hyperlipidemia remains an important modifiable risk factor in cardiovascular diseases. The aim of the present study was to investigate the potential role of the aqueous decoction of Sarabat (Diplazium polypodiodes Blume) in lowering plasma lipid profile in albino rats fed a high fat diet (HFD). Thirty Wistar albino rats were randomly divided into five groups of six rats and for 42 days were administered plain water and standard pellets (negative controls), lard and cholesterol (hypercholesterolemic animals), low and high dose Sarabat decoction (1and

2 g/100ml water respectively and Simvastatin as positive control. The effects of D. polypodiodes Bl. (Sarabat) decoction on rat lipid profiles was assessed by measuring the plasma Total cholesterol l(TC),triglyceride (TG),Low density Liporprotein (LDL), High Density Lipoprotein (HDL) and Very Low Density Lipoprotein (VLDL) .Administration of lard and cholesterol showed a significant elevation ($p<0.006$) of cholesterol during the third data gathering (week 4) and similarly for the other lipid parameters with an increasing lipid profile after a two-week metabolic adjustment period. Concurrent administration of Sarabat (D.polypodiodes Bl.) decoction showed a promising decrease in cholesterol serum concentration($p<0.006$) , an increase in High Density Lipoprotein (HDL) was notable although not statistically significant. These findings suggest the cholesterol and lipid buffering effects of saponin rich Sarabat as potentially useful in the management of hyperlipidemia as part of diet therapy .

Keywords:
hyperlipidemia;anticholesterol;diet therapy,saponins;antioxidants

FNH-I-006

Synthesis and Characterization of a Pyrazinamide derivative of Imidazo[2,1-b][1,3,4]thiadiazole, a potential Anti-tuberculosis drug

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Abstract: Despite the availability of first- and second-line drugs for the treatment of tuberculosis, the increasing prevalence of multi-drug resistance and extensively drug-resistant strains of Mycobacterium tuberculosis still poses a major threat to global health. With this, researchers are motivated to design and synthesize new molecules that possess promising anti-tubercular properties. Imidazo[2,1-b][1,3,4]thiadiazole derivatives have diverse pharmacological properties, one of which is that derivatives of this core molecule have been proven to have anti-tuberculosis properties.

In this research, apyrazinamide derivative of Imidazo[2,1-b][1,3,4]thiadiazole (6) was synthesized and characterized. It was generated in four steps that involved the formation of athiadiazole derivative containing a propyl group followed by the formation of the imidazo[2,1-b][1,3,4]thiadiazole core incorporating the 4- chlorophenyl group. Finally, an aldehyde group on the 5th position generated via a Vilsmeier-Haack reaction enabled the attachment of the pyrazinamide moiety via imine bond formation with 2-pyrazinehydrazide.Compound 6 was generated as a yellow brownish solid in 66% yield. This molecule may serve as a potential anti- tuberculosis drug due to the coupling of the pyrazinamide drug moiety and an Imidazo[2,1-b][1,3,4]thiadiazole core. The identity and structure of all the precursor compound and the final compound were confirmed usingm.p., IR, GC-EI-MS, and 1H-NMR methods.

Keywords: Imidazothiadiazole derivative; anti-tuberculosis; pyrazinamide

FNH-I-007

A Spectroscopic and in silico Study of the Interactions of Sinigrin and Allyl Isothiocyanate with common Metal Ions

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Abstract: Glucosinolates are a family of compounds present in many agriculturally-

important plants, primarily in members of Brassicaceae vegetables such as cabbages and broccoli. Their hydrolysis products, the isothiocyanates, have been found to have medicinal properties, such as anti-inflammatory and anti-cancer effects. While the metabolic fate of glucosinolates and their related isothiocyanates are properly documented, their interactions with many chemical species in vivo remain poorly understood, especially in cases where such interactions may inhibit the bioavailability and effectivity of these compounds. The interactions between a glucosinolate, sinigrin, and its isothiocyanate, allyl isothiocyanate, with three metal ions common in the human body, Fe(III), Zn(II) and Cu(II) are explored using both in vitro and in silico techniques. The results show that there is little to no indication these ions for compounds with sinigrin or allyl isothiocyanates that can inhibit their bioavailability.

Keywords: sinigrin; allyl isothiocyanate; bioavailability

FNH-I-008

Microcontroller-Based Aeroponic Farming Management System

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Abstract: With the growing number of technological advances in many fields related to the production of food and with the growing desire of food providers to provide high quality and nutrient–rich food items, it is only a matter of time before people are able to fully utilize the use of technology to control and monitor the food while it is still being cultivated. Having this type of system for the growth and development of farm produce is a big step in ensuring the quality of produce and also allows the consumers to monitor the compatibility of the plant species with this study. By doing this, farm costs are minimized and production maximized because all produce are closely scrutinized to provide optimal output. It is the goal of this study to help its consumers maximize their output and ensure the commercial viability of their produce.

The study focused on Aeroponics, a procedure that allows nutrients to be evenly distributed to the plants being cultivated in a farm through air distribution. It regulates the amount of nutrient received by the plants at any given time, therefore keeping their growth at a steady pace. The plant species used for this study is the lettuce. We used various data gathering techniques, experiments to determine whether the lettuce plant actually receives the nutrients it requires by measuring the amount of light, the temperature, moisture and humidity that are necessary for optimum growth. This method can create commercially viable products that are high quality and standardized.

Keywords: Arduino; Aeroponics; SMS;

FNH-I-009

Determining the Antioxidant Activities present in Calabash (*Crescentia cujete*) the "Miracle Fruit"

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Abstract: The *Crescentia cujete*, better known as the calabash fruit, is touted as a "Miracle fruit" for its therapeutic properties used in alternative medicine in the Philippines. This study compares the antioxidant properties of the calabash fruit (*Crescentia cujete*) with vitamin C using the 2,2-diphenyl-1-picrylhydrazyl [DPPH] assay and determines which method of preparing calabash will yield higher concentrations of antioxidants. Three methods were used in

preparing the calabash -- stir-frying, boiling and pureeing (raw calabash). Upon testing for absorbance, results showed that the raw fruit had a higher absorbance value, signifying that its antioxidant activities is lower than both the boiled and stir-fried fruit. Results further showed that stir-fried and boiled calabash contain no significant difference in the concentration of antioxidants. Both methods of preparations yielded roughly 80% DPPH % inhibition or around 1000 mg of vitamin C per 100g serving of the calabash fruit.

Keywords: Calabash; Vitamin C; Antioxidant; DPPH Assay

FNH-II-010

Why Local Health Policy Systems Research Matter in Local Health Governance

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Abstract: Local Philippine policymakers have yet to fully appreciate how public health research and policy studies translate to good health governance which leads to better health systems. This is seen with persistent technical and conceptual misunderstanding in the health system brought about by vague policies, competing frameworks and inherent socio- cultural biases. More often, this is attributed to the lack of research and data available for effective decision making and efficient service delivery. For the purposes of the study, data from literature reviews and agency reports were validated by key informant interviews and focus group discussions with different stakeholder groups. A previous multi-disciplinary study aimed at identifying the root causes of breast cancer in Bacolod helped confirm what literature suspected as possible reasons why local government units have yet to fully appreciate the value of research and policy studies in the Philippines. Namely, most local governments or health related agencies either (1) failed to recognize the multiplicity of societal actors in health systems, let alone (2) identify and assign the distribution of roles and responsibilities among those societal actors and (3) understand, develop and support their ability and willingness to fulfil their roles and responsibilities, (4) there is limited or no data available- if there were any, these tend to be outdated. Innovations in research and analysis of the inherent local health system issues, the prevailing sociopolitical power dynamics in the community as well as the perspectives of the health service provider will prove invaluable especially when formulating policies and instituting programs.

Keywords: Health Policy Systems Research, Local Health Governance; Local Health Systems

FNH-II-011

Differential gonad histomorphology and steroid hormones in rice paddy eel *Monopterus albus*

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Abstract: *Monopterus albus* known as the rice paddy eel is an introduced freshwater fish distributed in some areas in Luzon rice paddies. The establishment and survival of the population of species in their breeding ground can be attributed to the species' reproductive characteristic and capacity. The *M. albus* is a protogynous hermaphroditic fish which has a natural ability for sex reversal. The species developed first as female then into intersex stage and finally, transitioning into male. This study was conducted to be able to first

describe the histomorphology of the different gonadal maturation stages and second is to detect and quantify the steroid hormones 17ß-estradiol (E2) and testosterone (T) concentration levels in the plasma. Samples of the fish were collected randomly in selected farm ponds in Bulacan, Nueva Ecija and Laguna. The fish gonads were categorized into immature, maturing, mature ovary, intersex and male gonads based on the presence of ovarian and testicular tissues. While the enzyme link immunoassay (EIA) was used to measure the steroid hormones concentration levels in the pooled plasma for immature female, mature females and unidentified (intersex or male) gonad. The gonad histological analysis clearly showed that the intersex gonad recognized the presence of both an ovarian and testicular tissue. The results of the EIA indicated the following mean concentrations (ng/ml): (1) for immature females E2 is 1.031 and T is 1.312, (2) for mature females E2 is 1.111 and T is 1.368 and (3) for undefined gonads E2 is 1.045 and T is 1.07. The differences of both hormones concentration levels are apparent across the gonad maturation stages. The functional role of these hormones in vitelogenesis and spermatogenesis leads to the development of this sex changing gonads. This kind of reproductive characteristic contributes to our understanding of the reproductive success of this hermaphroditic fish.

Keywords: *Monopterus albus*; hermaphrodite; gonad; estradiol; testosterone

FNH-II-012

Systems Thinking Approach to Research for Health Systems Resilience

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Abstract: In one of the strategic goals of the Sendai Framework for Disaster Risk Reduction (DRR), health is underscored as a priority. Health determinants of disaster thus need to be addressed to ensure comprehensive development and sustainability, with an initiative to institutionalize and mainstream disaster risk reduction and management in health policies, plans and systems. It also underscores the importance and encourage the application of Science, Technology and Innovation (STI) in the country's disaster risk reduction (DRR) and climate change adaptation efforts at the national and local levels, including strengthening the capacities at the local level to prevent and mitigate disaster risk and adapt to climate change. Accordingly, the Philippine Council for Health Research and Development (PCHRD) of the Department of Science and Technology identified Health Resiliency in the context of disaster risk reduction and climate change adaptation (DRR-CCA) as one of the priority areas under of the National Unified Health Research Agenda for 2017-2022. It is recognized that scientists and researchers from across disciplines should play a role to play in providing the information, methods and tools needed to fully understand the health risk and vulnerability and build resilience against disaster and climate change. To ensure the sustainability of such research programs, a paradigm shift in thinking must integrate, organize and prioritize research within a systems context. This work proposes a systems thinking approach and a conceptual framework wherein research programs can be developed to improve the ability of the country's health system to be resilient with respect to emerging global and domestic threats by establishing a national platform and conducting health- focused research in DRR-CCA. This framework can then be applied in a planning workshop to identify health- focused research opportunities to strengthen community and health systems resilience in the context of climate change adaptation and disaster risk reduction. Such framework aids us in the planning and

developing roadmap by identifying key issues and research gaps, visualizing interactions within the systems, organizing information, developing computational models, and identifying indicators.

Keywords: health systems, Philippines, climate change adaptation, disaster risk reduction

FNH-II-013

Particle Size Distribution and Sensory Analyses of Coffee Using Various Manual Grinders

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Abstract: There are currently four waves of coffee consumption: instant coffee, coffee from cafés and coffee shops, specialty coffee, and home brewed coffee. As home brewed coffee increases in popularity, the usage of certain equipment such as grinders also becomes more common. This study aims to observe the effects of different grinders on the particle size distribution (PSD) of coffee grounds and to determine the correlation of PSD to the sensory attributes of the final brewed coffee. This research is designed to be a correlational and deductive study, and data collection is divided into the PSD analysis and the sensory evaluation. Five (5) of the most favored manual grinders were manipulated to attain coffee grounds that produced a total dissolved solids (TDS) value of 1.45 ± 0.05. The PSD of the grounds were then analyzed through laser diffraction, while the rest were brewed, the brewing process being automated to maintain consistency. Sensory evaluation was performed through the cupping process, before which the tasters' palates were calibrated through a seasoning. To analyze the data, statistical methods such as t-tests and analyses of variances (ANOVA) were utilized, along with visual analyses and comparisons of PSD and sensory grading graphs. PSD graphs resulted in varying shapes, though there were some similarities. Based on the statistical tests, however, there was no significant difference between the sensory grades obtained for each grinder, even though the qualitative characteristics may have differed between each grinder. Moreover, similarly shaped PSD graphs did not indicate similar sensory gradings and vice versa. In conclusion, there is not necessarily a direct correlation between the PSD of coffee grounds and the flavor profile of coffee, and there may be other factors affecting the sensory attributes of the final brew.

Keywords: particle size distribution; sensory analysis; coffee; t-test; anova

FNH-II-014

Fortification of rice with folic acid through surface modification and absorption

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Abstract: There has been an increasing global prevalence of folate deficiency in rice-consuming countries. Rice fortification is therefore sought to improve the daily intake of essential nutrients and address the malnutrition and other health issues of the vast majority of the human population. Surface modification through ultrasonication

is a simple and convenient technique in making the rice kernel more porous and susceptible for absorption of vitamin such as the folic acid. X-ray tomography revealed that sonication increased the pores of rice twice as the non-sonicated rice. Through this technique, levels of folic acid can be enhanced in rice kernels leading to its fortification. 17 rice varieties (i.e. 17 brown and 17 milled) were screened for their amount of folates and found out that brown rice samples have folate concentration ranging from 26.77 to 106.84 ug/100g as compared to milled rice samples that have 16.43 to 93.99 ug/100g. Six rice varieties with contrasting folate levels were used in this study. Stepwise fortification process was proven to retain folates in rice (brown rice - 99.93± 0.186 mg/100 g, milled rice - 52.50 ± 0.47 mg/100 g) as compared to one-pot fortification process (brown rice - 49.58± 0.8291 mg/100 g, milled rice - 60.37± 0.07 mg/100 g). A range of conditions (i.e. soaking for 1, 2, and 3 h with folic acid concentrations of 50, 100, and 200 ppm and sonication at 1 min, 3 mins, and 5 mins at room temperature) were used to investigate the kinetic uptake of folic acid in the fortified rice. The quality of fortified rice were evaluated based on the texture, kernel dimensions, and color. There is no significant difference in the texture of fortified rice and non-fortified rice.

Keywords: Rice, Rice Properties, Folates, Folic acid fortification

| HUMAN CENTRIC TECHNOLOGY

HCT-I-001

Vital Sign Scanner With Bluetooth Capabilities Connecting to Android Application Using Raspberry Pi

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Abstract: The negligence of the health is prominent in medical facilities. This is due to the stressful environments in the medical facilities, lack of the information about the patients, and the immobility of the medical devices that are being used in the facilities. The group intended to make a vital sign scanner with Bluetooth capabilities connecting to an Android application using a Raspberry Pi. The device scans three vital signs, body temperature, blood pressure, and heart rate. The Android application can register users into the database, receive data from the device and display it via Bluetooth. The results from this these provide a 90% accuracy for patients and the database used can store as what it was intended. With this, the group intends to help with the simplifying of the mobility of the medical devices and the efficiency of medical devices.in taking in the patient's vital signs.

Keywords: Vital signs, Android, Bluetooth, Raspberry Pi

HCT-I-002

Exchange Program Management System for De La Salle University Manila's External Relations and Internalization Office

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Abstract: A major obstacle for De La Salle University Manila's External Relations and Internalization Office (ERIO) was that they were unable to maximize the exchange opportunities listed within the memorandums of agreement (MOA). The paper serves as a case in providing an in-depth analysis of the significance of an exchange program management system with regards to upholding the globally competitive status and excellence of the University.

Keywords: External Relations and Internalization Office; Memorandums of Agreement; Exchange Students; Exchange Programs; Management Information System

HCT-I-003

Association of Faculty Educators of DLSU Inc Portal with Document and Content Management

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Abstract: Association of Faculty and Educators of DLSU, Inc. (AFED Inc.), established since 1970, is a loaning association within De La Salle University that caters to faculty members and non-teaching staff for their financial needs. Moreover, includes faculty representation to the management and administration to negotiate policies. It's services are loans

provided by the association, assisted loans with partner banks, health-aid funds, lifetime benefits, death benefits to beneficiaries, and product purchasing. All of which are mostly funded by salary deductions and donations from members. However, there had been complaints of exceeding mature loan accounts resulting to over deduction on salaries. Moreover, there has been problems on keeping documents for referencing during negotiations. While there is a proper storage for these documents, it is difficult to search for these specific documents. In addition, some documents that are very old are already deteriorating.

AFED Inc. Portal, is a loaning association web portal with document and content management for Association of Faculty and Educators of DLSU, Inc. This aims to ease the difficulty in ensuring the operational continuity of the organization. In developing it, PHP with a CodeIgniter framework will be utilize in coding the logic for the system in a Model-View-Controller pattern. On the other hand, MySql we will be used to handle the data. The proposed methodology for this project will be Rapid Application Development (RAD).

Keywords: Web Portal; Loans management; Document Management; Content Management

HCT-I-004

Department of Transportation: Data Warehousing and Analytics

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Abstract: The Department of Transportation, which is composed of the rail, air, maritime, and road sectors, uses manual processes in order to produce analytics. This results into the delay of the generation of accurate and timely analytics due to the size of the datasets. The DOTr also cannot maximize the datasets they currently have due to the limited capabilities of their existing processes for their planning and implementation of transportation projects. In order to address these issues, an IT solution with three primary modules were proposed – namely a data submission system, data integration and warehousing application, and a business analytics dashboard. The results of this project include a cleansed and normalized datasets, an executive dashboard, and a meaningful and useful descriptive and prescriptive analytics, such as knowing the busiest months, busiest stations, predicting the peak hours, passenger volume, and train trips. The objective of this study is to extract the data from the various agencies under the rail sector, transform and cleanse the datasets, and load the datasets into analytics. The significance of this study is to provide accurate rail heatmaps, calculate the revenue of the rail lines, and to aid in the decision and policy making for the DOTr's executives.

Keywords: Analytics; transport; rail; executive dashboard; government

HCT-I-005

Faculty of Arts and Languages Information System for PNU

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Abstract: Philippine Normal University's (PNU) Faculty of Arts and Languages (FAL) seeks to improve its lengthy and tedious faculty loading process and take the opportunity to employ faculty profiles to

monitor faculty members, their information, and their activities. The proponents analyzed the business processes and areas of improvement of FAL and set out to build a comprehensive information system that encapsulates these areas of improvement, with assistive faculty loading features and faculty profiles. These modules are the core of this innovation project that will serve as the pilot for specialized information systems in administrative functions for the Philippine Normal University. The project aims to assist FAL in assigning faculty members to classes and facilitate creating, updating, and storing faculty information. The Agile Scrum Methodology was used throughout the system development wherein the proponents developed the system at the same time taking into account the constant feedbacks and revisions coming from the users of FAL. The system had undergone four stages of testing: Unit testing, integration testing, system testing and user acceptance testing. The proponents accounted for the testing results to further improve the system. The project will further improve the processes of FAL in both faculty profile and faculty loading. Implementing a centralized database will address the issues of FAL with regards to storing and retrieving faculty profiles, while implementing a score-based algorithm will allow automatic and assistive assignment of faculty members which, making the faculty loading process faster and more efficient. Thus, the lengthy and tedious process of faculty loading has been automated and simplified.

Keywords: Faculty Profile; Faculty Loading; Assignment Algorithm

HCT-I-006

Structure-Preserving Guided Filtering

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Abstract: Image filtering is a vital aspect in many imaging and computer vision technologies. The guided filter is one of the most widely used of the modern filters, in part due to its low complexity construction. However, the original guided filter also has several limitations, particularly the production of halos, detail halos, and mishandling of inconsistent structures. A newer filter, the anisotropic guided filter, addresses most of these problems but is, under certain conditions, sensitive to the density of details in the image. This work proposes a multiscale adaptation to address these new limitations. Experiments on edge-preserving smoothing and texture removal demonstrate the improvements in filtering quality of the proposed filter on real images.

Keywords: image filtering, adaptive filtering, guided filtering

HCT-I-007

FPGA-Based Implementation of Bit-Vector Algorithm

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Abstract: DNA pairwise sequence alignment involves matching two DNA sequences to identify and locate identical substrings which can be used in downstream analysis to discover biological relationship that leads to further scientific and medical advancements. One of the metrics to measure the similarity of the two sequences is the Damerau edit distance. In human genome, the length of one of the sequence n is 3 billion base pair long while the length of the other sequence m can be a thousand base pair long. Dynamic programming-based implementation of the Damerau edit distance has a runtime complexity of Θ(mn). Considering the length of the sequences, this process is computationally intensive. Thus, various algorithms have been

proposed to improve its runtime. One such algorithm is the Bit-vector algorithm which has a runtime complexity of Θ(n). Several researchers have implemented this algorithm in various computing platform. In this study, our contribution is the implementation of the Bit-vector algorithm using Field-Programming Gate Array (FPGA) computing platform to take advantage of its computing capability, design flexibility,andpowerefficiency. Experimentresultsbasedonvaryinglengthsofquery and reference sequences show that our implementation is consistent with the algorithm's runtime complexity of Θ(N). The power consumption usage of the implementation is only 3.48W.

Keywords: DNA sequence alignment; Bit-vector algorithm; SIMD computing capabilities; FPGA

HCT-I-008

An Investigative Study on the Factors Affecting the Usability of the Grab Application: An Applied Research

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Abstract: Through technological advancements, mobile applications keep on improving for the convenience and satisfaction of users. One of the prevailing apps in the Philippines today that aim to provide great user experience is the Grab application. However, some problems were found in the application that lead to a poor usability of the application and a low user satisfaction of the application. This study aims to evaluate and understand the interface of the Grab application and its effect to its users. In order for the Grab Company to enhance the satisfaction of the app's users, the researchers have selected five predetermined factors, which will be able to shed light on what factor contributes the most to its user experience. Forty participants were selected for this study and they are all first-time users of Grab. Specific instructions were given to them and pre-questionnaires and post-questionnaires were answered by them. The respondents were also interviewed afterwards. A multiple linear regression (MLR) analysis was calculated in predicting the participants' time spent in booking and number of errors made while booking. The results show that there is no significant regression equation found; however, the desirability of the font is a significant predictor to the time spent in booking. The study was also able to discover which part of the interface were difficult to use for first-time users and the reason why. This can help improve the Grab interface and enhance easiness for the first-time users. It is hoped that this study can provide substantial insight to the effects of different factors of the user interface with the overall user experience.

Keywords: Usability; User Experience; User Interface; Grab Application

HCT-I-009

A Comparative Analysis of Overlapping Speech Detection Techniques That Utilize Machine Learning for Meeting-type Audio Recordings

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Abstract: Overlapping speech poses an obstacle in speech analysis, especially for speaker diarization. It is often desirable to either separate or disregard sections in audio recordings containing overlapping speech, as this process has been observed to improve the performance of speech analysis models. The primary process of automatically identifying the overlapping speech segments is known in the literature

as overlapped speech detection or OSD (Xiao et al., 2011). This study aims to compare existing approaches used to detect overlapping speech in audio recordings. Although existing works were trained to handle different types of recordings, this study focused on the subset of works that were tested on meeting-type audio recordings. This study also attempts to address the issue of mismatched evaluation metrics through a novel approach called relative estimation. The resulting comparative analysis showed that for meeting-type audio recordings, a GMM-based detection approach trained with phoneme omission relatively gave the best results. However, insights and observations from this study reveal the need for a universal evaluation metric in order to reliably compare existing approaches. The need for a dedicated overlapping speech database to aid in the implementation of such a metric is also recommended.

Keywords: overlapping speech detection; machine learning

HCT-II-010

Use of Container Technology in an Academic Cloud Computing Environment

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Abstract: Traditional Information Technology Infrastructure is no longer coping up with the changing business needs. Cloud computing allows organizations to have the agility to quickly provision, allocate and deliver on-demand IT resources to meet ever-changing business needs. In the paper, the researchers provided an architecture that incorporates the use of the open-source cloud platform OpenStack and the open- source container platform Docker in the context of usage patterns in an academic institution offering information technology degrees and courses. This research considered academic usage scenarios such as the conducting various development classes in computer laboratories as well as offering both students and faculty members their on virtualized workstation in the private cloud. By using a cloud platform, this research addresses issues that include allocation, maintenance and configuration of computer laboratories as workstation instances in the virtualized cloud environment can be easily restored to a working state in case of failures. And by combining containers into the cloud platform, each individual can select tools and services pre-packaged in containers to incorporate and deploy for use in their own virtual workstation without the need for administrator intervention as well the concern of conflicts and configuration problems. Specifically, the research considered basic programming courses, database system courses, and development courses requiring a deployment environment or DevOps like environment. Results of the research shows that by incorporating container platform in an cloud environment would increase flexibility, decrease redundancy, and improve on resource utilization efficiency. Challenges such as user access management in concurrent use of a common workstation instance were also introduced when containers were incorporated as the scope of the virtualization and encapsulation have been reduced to just the containers as oppose to the entire workstation instance.

Keywords: cloud computing, container, OpenStack, Docker, Academic Cloud Environment, virtualization, KVM

HCT-II-011

Laguna Belair Transport Service Cooperative Management Information System

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Abstract: The development of RFID systems for use in any environment has been rapidly evolving with each new development aiming to improve performance and extend the possibilities for a variety of applications (Perkins, 2017). Gathering vital data has been made easier using new technology. However, as the variety of ways to gather data increases, the demand for certain data rises in the need to generate information. In the transport cooperative context, certain mandates have been implemented regarding the need of information about members such as patronage of the coop services. In addition to that, the need to maximize resources effectively is rising in the transportation context due to the rising prices of resources needed to run vehicles. This paper presents the development of a system that allows for effective fleet management and using RFID to comply with mandates. The main objective of the study is to develop a system that would enable management to make decisions regarding the cooperative's operations, resolve compliance issues, and improve overall user experience. Laguna Belair Transport Service Cooperative
(LBATSC) provides shuttle services to Laguna Bel Air 1, 2, and 3 residents and transients as well as other people with business in the area. Its main problem is the difficulty of making informed managerial decisions due to different data sources, large volume of data, unavailability of member's data on ridership, among others. The system is able to facilitate remittance processing, shuttle management and member information management. Technologies used are Django for the back end and React.js and Ant.Design for the front end. The methodology used was Agile Methodology. The users agree that the system is aligned with existing business rules and has addressed the problems of managing the shuttle operations.

Keywords: fleet management, management information system, RFID, transport cooperative

HCT-II-012

Designing A Location-Based Travel Application Via Data Integration and Opinion Mining

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Abstract: Modern technology has a big impact specifically to modern tourists. One way to inform people on where they're going to is through the use of smartphones or mobile applications. They used it as a guide for them to know the places they want to go. The present problem faced by the tourism industry are undiscovered tourist spots, limited information on the existing POIs, no feedback and reviews mechanism or it came from multiple sources, and the navigation of tourists. To address the problems, the researchers provided an android mobile application. This study is to provide an integrated tool for travelers to easily navigate the province of La Union using data integration and opinion mining. The researchers used Lean Software Development methodology. The results stated that the problems encountered by the tourists were direction, information, unexpected circumstances, and personal problems. Direction and information were their major problems based on the researchers' interview. Therefore, a mobile application was created along with the implementation of open data and opinion mining to address the problems. The scope and limits covered by the study were also determined to clarify the restrictions for this research. An integrated tool which can resolve those problems would require Lean Software Development methodology and ISO 9126 to assess the relevance and the efficiency of the system.

Keywords: Open-Data; Opinion Mining; Location-based Travel Application

HCT-II-013

Concept Concordancer: A Visualization Tool for Corpus Analysis

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Abstract: Corpus analysis is performed by linguists manually to gather information about a language using large collections of texts. Among the tools that can be used for this is a concordancer. The concordance provides a convenient way of lining up all the instances of a certain keyword. This allows the linguist to study how a keyword was used in the given language. However, what is missing in current concordancers is the ability to search and list the instances of the keyword including the related words (like synonyms) within the text. Our research addresses this gap by designing and implementing a concept concordance that can find and show visualizations of related concepts, not just actual search keywords, within a corpus. Stanford CoreNLP was used to process the text and provide annotations while WordNet and ConceptNet were used as resources for concept finding. The Concept Concordancer is able to generate a list of concepts, serve as an annotating tool, show visualization of concordances and patterns, provide concept suggestions and store concepts in a dictionary. We performed tests on our concept concordance using a general corpus and it is found that ConceptNet and WordNet alone is not sufficient, as the concordance performs better only when additional concepts are added during customization.

Keywords: concordancer, computational linguistics, natural language processing

HCT-II-014

Estimation of Roadside Particulate Matter Using Traffic and Meteorological Conditions

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Abstract: In the National Capital Region of the Philippines, air pollution levels are 70% higher than what is considered safe by WHO air quality guidelines. One main cause of this is the pervasive use and the increasing number of vehicles in the region. In other countries, monitoring stations and emissions models have aided air quality planning and policy making. However, acquiring and maintaining air quality monitoring stations are costly. Usage of an existing vehicle emissions model for quantifying high-quality emissions measurements requires in-depth adjustments and calibration of the model. In this paper, the development of a roadside air quality estimation system that considers the context of Philippine land transport is explored. In order to do this, statistical and machine learning techniques were used to model PM2.5. Vehicle counter and classifier of the Vision-based Vehicle Monitoring System (VEMON), and meteorological and air quality measurements along the De La Salle University-Manila, Taft Avenue, Manila were used.

Keywords: Air Quality Estimation; Particulate Matter; Roadside Pollution; Traffic Emissions

HCT-II-015

A Digitally Automated Text to Braille Device for the Visually-Impaired

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Abstract: Convenience, portability and accessibility are key factors in the declining usage of Braille reading materials. While alternative devices such as screen readers, refreshable Braille displays, and mobile apps are being developed, the demand for better implementation of technology in said devices has yet to be met. These devices are often bulky, inaccessible, overly robotic and artificial, and also lack the required context which can cause stress to its users as well as multiple misunderstandings. With this in mind, a device was designed, with a 3 by 2 series of actuators, representing the "dots" in Braille, to raise the six pins under a finger-sized platform which represent a single Braille character. The coding and data transmission of the device uses Arduino Uno with specific components being 3D printed while the Braille code is based on Unified English Braille. The prototype is able to display Braille characters at approximately 180 words per minute.

Keywords: Visually-Impaired; Braille Reading Device; Unified English Braille; Arduino Uno

HCT-II-016

Institutional Dashboard: Development of a strategic dashboard based BI Software

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Abstract: We document the creation of DLSU's first institutional dashboards for strategic management using the Power Business Intelligence (Power BI) software. An institutional dashboard allows administrators to view and interpret key strategic indicators in real time, to aid decision-making and identify major issues or opportunities. This paper explores explore core concepts behind smart dashboard design and documents the way to construct an institutional dashboard.
We assume that the relevant metrics have already been identified.The paper consists of four components. First, it provides a literature review regarding dashboard design principles. Second, it discusses the way to integrate information sources, feed information into dashboards, and ways that to customize a dashboard. Third, publication of dashboard to users. Fourth, it summarizes observations and suggestions for developing an institutional dashboard.

Keywords: BI; Dashboard; Data Visualization; KPI; Strategic planning

HCT-II-017

Manifold Intra-Prediction for Image and Video Coding

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Abstract: Image and video coding is an important aspect of modern imaging – allowing for the use of higher-resolution imaging systems without severely affecting the storage and transmission requirements of the image or video data. Part of most modern coding systems is the use of intra-prediction techniques to reduce the amount of data to be encoded. The current image and video standards describe handcrafted intra-prediction schemes that may not fully exploit the correlation of natural images. This work improves on conventional intra-prediction using a sparsity-regularised regression scheme derived from training images. In addition, it introduces a manifold-adaptive intra-prediction scheme that

further reduces the coding residuals obtained from intra-prediction.

Keywords: intra-prediction, image coding, video coding

HCT-II-018

Contextualizing Programming Problems Using Philippine Stock Exchange Index Data

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Abstract: We explore real life problem of stock trading/investment using real data from 30 companies in the Philippine Stock Exhange Index as context for students to learn, design and implement basic data structures and algorithms for representing, storing and processing data in an advanced programming course. Access to real-data allows us to give real-life answers to questions such as "What was the lowest price of this stock"? or "How much did I earn (or lost) in my investment in this company?" This approach to specifying problems for programming exercises and projects provides student with a grounded understanding of topics with a localized context.

Keywords: Learning in context; Basic data structures and algorithms; real-world stock historical data

| LEARNERS AND LEARNING INNOVATIONS

LLI-I-001

Prototype Module for Online Functional English For Adult Asian National Beginner Learners

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Abstract: The major focus of this study was to develop a prototype module for online functional English for adult Asian national beginner learners that would help them in their difficulties in using English for different functions or situations. The researchers discovered the difficulties of the Asian nationals by observing them in an interview with them. During the interview, the Asian nationals showed their willingness to learn functional English although it was difficult in their part. This study used purposive sampling design. The research participants consisted of approximately 15 Asian nationals, five Chinese, five Japanese and five Koreans. After the interview the data were gathered and transcribed. Based on the findings, the researchers found out that the adult Asian national beginner learners had difficulties in English in terms of sound production, intonation, vocabulary, sentence construction and grammar. The online prototype module was formed to help them cope with their difficulties in functional English. This online prototype module will be posted or uploaded in the internet to help the adult Asian national beginner learners to enhance their skills in using functional English.

Keywords: Asian Nationals, Functional English, Difficulties in Functional English

LLI-I-002

Select Variations on Mathematical Models of Cyclic Circadian Learning

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Abstract: Learning is a process that requires not only physical and mental capabilities but also time and effort. Simultaneously occurring with forgetting, the learning process becomes complicated and will require much more time and effort to retain more information in the human brain. In a study done by Šimon and Bulko, they have formulated models of learning with exponential, power-law, and combined power-exponential types of forgetting. The forgetting functions were introduced in order to determine how much information is being retained despite the continuous deterioration of learned information. This paper builds on the original models done by Šimon and Bulko, limiting the modifications to the consideration of exponential and power-law types of forgetting. In the modification, students learning at a not necessarily constant rate was taken into account. While considering the possibilities that an individual does not necessarily learn at a constant rate, we created models that assume the rate of learning is linear and exponential. Although the assumption that the rate of learning is constant has been withdrawn from the modified models of learning, it is still assumed that the process of learning is a voluntary task, and is done without making logical bonds (i.e. using mnemonic devices to help the process of learning). As a result, we have obtained complex models of learning and forgetting. A discussion on the behavior of parameters that define the model is given. Furthermore, arbitrary values will be assumed under specific conditions such as a faster rate of learning over forgetting and vice versa. for these parameters in order to observe their behavior. Although the modified models are

no longer simple, they can still be utilized to obtain the available volume of information after a period of learning, as well as the amount of time required for a student to learn a given volume of information, and the real capacity of a student. Moreover, the modified models have taken into consideration a more practical perspective of the learning process wherein individuals learn at a non-constant rate.

Keywords: mathematical modeling, differential equations, circadian learning, forgetting, numerical simulation, incomplete gamma function

LLI-I-003

Human-to-Human Storytelling: Towards Enhancing Man-Machine Interaction through Intelligent Conversational Agents

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Abstract: Recent innovative practices in man-machine interaction can be achieved through intelligent conversations in the form of stories and storytelling between the human users and the conversational agent. Doing do calls for two major steps: text understanding and text generation. The current study focuses on the first as it aims to provide a description of interactional moves and strategies between teacher and students within the context of human-to-human storytelling. Storytelling sessions in reading classes at different grade levels were audio recorded. transcribed, and analyzed using Graesser, Person and Huber (GPH) scheme (1992). Results reveal that the pattern of exchanges between teachers and students during storytelling sessions is almost exclusively Question and Answer while the strategies employed are those that reveal activating, prompting, hinting, feedbacking, and evaluating. This will help inform human-machine interaction specifically involving intelligent conversational agents in a storytelling context. This is envisioned to later help in the development of AI-based platforms and paradigms within and outside the classroom not only for storytelling purposes, but also for reading and other language-related pedagogical needs.

Keywords: conversational agents; storytelling; discourse processing

LLI-I-004

Analysis of The Grammatical Construction and Compositionality of Algebraic Verbal Structures: Linguistics and Logic Interface in Mathematical Language

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Abstract: Over the years, both educators and students have had problems in teaching and learning Mathematical language because of the linguistic features of the text. Research supports that Mathematical language is syntactically and semantically specialized. The lexis, syntax and semantics of Mathematical language are seen to be factors in its effective cognitive representation and critical operations beneficial in developing algebraic skills. Hence, the proposition that language competence is a key component in understanding Mathematical language requires a need to dissect and examine Mathematical language based on the precepts of Linguistics. This paper aims to describe the grammatical construction and compositionality of algebraic verbal structures such as algebraic expressions and sentences which are baseline of mathematical word problems. This is to contribute to the understanding of mathematical language by making the lexical and syntactical features and the semantics of algebraic verbal structures explicit. Formal language analysis framework was used as a reference model for presenting a grammar of algebraic expressions. The constructional and compositional models

illustrate the crossing of the language used in algebraic statements over the natural language to highlight the specialized mathematical language. Constructional and compositional analyses were used to describe and explain the syntax of algebraic expressions and sentences in terms of principles and operations typical of mathematical language which allow context-free analysis of the language system; hence, the minimalist phrase structure model. Results show that in general, algebraic statements can be classified in three types; algebraic noun phrases, algebraic conditional-operational noun phrase, algebraic relative noun phrases and algebraic sentence of equalities. Noun phrases of algebraic expressions are nominative accusative type in non-terminating constructional form.

Key Words: grammatical construction and compositionality; noun phrases; phrase structure, algebraic expressions; mathematical language

LLI-I-005

The "Wrong Answer Note": An Analysis of Students' Mistakes

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Abstract: This research study aimed to determine the different types of students' mistakes in quizzes of selected topics in Mathematics based on the reasons why these mistakes were committed. Participants came from three different intact classes namely Grade 7 Basic Algebra, Grade 8 Geometry, and Grade 10 Analytical Geometry. Through the use of the "Wrong Answer Note", students revisited their mistakes in quizzes, reflected on these and explained why these were committed. Students' lack of understanding and mastery, insufficient time to finish answering the item, carelessness, failure to study, and miscalculation, among others, were some of the reasons students gave. Based on these given reasons, errors were classified as conceptual, value-based, problem solving error, or carelessness. Recommendations were given both to the teachers and students in order to address these errors.

Keywords: assessment; types of errors; wrong answer note

LLI-I-006

A Genre Analysis of School Mental Health Policy Documents

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Abstract: The National Mental Health Act in the Philippines (RA11036), signed in 2018, requires schools to integrate strategies to promote mental health. In addition, Section 23 also states that "age appropriate content pertaining to mental health shall be integrated into the curriculum at all educational levels. Schools should also develop policies and programs for students educators, and other employees designed to raise awareness on mental health issues, identify and provide support and services for individuals at risk, and facilitate access, including referral mechanisms of individuals with mental health conditions to treatment and psychosocial report." This recent reform means schools need to craft their policy document on whole-school mental health (WSMH). However, most online school policy documents on mental health are found in UK websites. In order to help school leaders in the Philippines in meeting the mandate to draft a WSMH this research was conducted. Genre analysis was employed in order to analyze the macro pattern and the micropattern of 10 policy documents from school websites in the UK. Convenient sampling was conducted before the analysis of the moves in each policy. Each move was then analyzed to uncover its function. Finally, a comparison chart was

created to uncover obligatory moves in these policies. Those moves that appeared in more than 50% of the samples were included in the final report as obligatory. The paper concludes with suggestions for crafting the WSMH and for further research on this urgent topic.

Keywords: whole-school mental health; genre analysis; policy analysis; mental health policy

LLI-I-007

Effects of Block Scheduling on Grade 12 STEM Students' Academic Performance in General Physics 1

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Abstract: Block scheduling is a system for scheduling classes characterized by longer hours but less frequent sessions in a week. Literature supported its effectiveness in enhancing students' academic performance since this schedule allows students to focus on fewer subjects each day. However, local studies supporting this is lacking. This study investigates the effects of block scheduling in the academic performance of students in General Physics 1. A hybrid block schedule was used to compare performances of two batches of Grade 12 STEM students. One batch received instruction under the traditional four one-hour-per-day sessions while the other, two two-hour-per-day sessions. For comparison, the participants from both batches were paired based on their Grade 11 GWA and grades in Mathematics, and scores in the Diagnostic Test in General Physics 1. Using t-test, it was found that students who received instruction under the block schedule scored significantly higher than the previous batch who were taught under the traditional schedule, with the means 31 and 28 out of 50 ($p < .05$).

Keywords: block schedule; traditional schedule; academic performance; physics

LLI-I-008

Development and Validation of Historical Physics Vignettes for Physics 2 Course of Senior High School

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Abstract: Despite this significance of science to every man's life, a considerable number of the population lacks understanding of scientific operations. Nature of science (NOS) teaching is viewed to complete the puzzle of scientific literacy and science learning. NOS refers to values and assumptions inherent to scientific knowledge and the development of scientific knowledge. Teaching nature of science to students develops awareness of the relevance of science in society which might help remove the disconnection of science to students as it stimulating their interests by showing science practicality. Historical Physics Vignettes were developed to serve as instructional material to teach NOS in senior high school. The material was validated by experts in terms of historical narratives, featured aspects of NOS, guide questions, language, overall presentation, illustrations, and additional activities through a researcher developed criterion based reference evaluation tool. The developed instructional material featuring eight vignettes was rated as "Highly Acceptable" (4.66) by the validators. The value of average inter-rater reliability coefficient kappa of the ratings of the evaluators is interpreted as "Substantial Agreement" (0.63).

Keywords: historical vignettes; nature of science; history and philosophy of science

LLI-I-009

Quadruple Points ng Edukasyong Lasalyano sa Panahon ng Rebolusyong Industriyal 4.0

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Abstrak: Layunin ng papel na mailahad ang quadruple points o apat na puntos ng Edukasyong Lasalyano at kabuuang daloy nito upang matamo ang kaisahang diwa sa paghahain ng uri ng edukasyong kailangan sa panahon ng ikaapat na Rebolusyong Industriyal. Inilarawan ang quadruple points sa pamamagitan ng paikot na ugnayan ng bisyon ng DLSU, sentrong pagpapahalaga ng Lasallian Guiding Principles (LGP), Outcome-based Education (OBE), at Lasallian Reflection Framework (LRF).

Keywords: R 4.0; DLSU; Outcome-based Education; Lasallian Reflection Framework

LLI-II-010

Language experiences, preferences and perceived proficiencies of multilingual Filipino-Chinese students: An exploratory study

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Abstract: Despite the indispensable benefits and advantages of being bilingual or multilingual, there may also be unwelcome effects. A unique demographic in the Philippine education system is the Filipino-Chinese students studying in Chinese high schools. Although they know and study the Filipino language since they live in the Philippines, and it is a part of the secondary curriculum, they typically use Hokkien at home because this is a common language in Chinese households that have a deep attachment to their cultural heritage, and traditional roots (Zhang, 2011). In these schools, the medium of instruction (MOI) is English except for the Chinese (Mandarin) and Filipino subjects. Thus, these students can be considered at least bilingual or even multilingual. The present study sought to look into two particular languages in the participants' linguistic repertoire: whether the participants perceive subtractive bilingualism or mild attrition occurring in either their English or their Mandarin because although these two languages are the dominant languages of instruction in school, one language may be more utilized and preferred over the other. The learners' perceptions of their proficiency in the two languages and their language preferences were also investigated. Results show that the multilingual Filipino-Chinese student participants do not believe that they are experiencing attrition in any of their languages. This is a highly positive attitude that may lead to higher motivation in maintaining and acquiring new and more languages. More studies like this should be conducted to increase literature centralized on subtractive/additive bilingualism and language attrition particularly concerning this type of learners in the Philippine setting.

Keywords: Bilingualism; Multilingualism; language attrition; Chinese learners

LLI-II-011

Improving the Least Mastered Competencies in Science 9 Using "Pump it up!" Electronic Strategic Material

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Abstract: The global problem or issue rampant in schools and other educational institutions nowadays is an underachievement. Underachievement is the failure to reach the full potential of learners. The Electronic Strategic Intervention Material or (E-SIM) is the newest remediation material prescribed by the Department of Education to lessen

academic underachievement by increasing the learners' performance in the least mastered competencies and skills. This action research aimed to determine the effect of "Pump It Up!" E-SIM in the least mastered competencies in Circulatory and Respiratory Systems Working with Other Organ Systems of selected Grade 9 learners of Manuel Luis Quezon High School. The students were selected using simple random sampling technique (Fishbowl Method). In this sampling technique, twenty students were randomly drawn. In order to collect data, Learners' Pre-Test and Post Test in the least mastered companies in Circulatory and Respiratory Systems Working with Other Organ Systems were prepared by the teacher-researcher, and Learners' Perception Survey (SPS) developed by Espinosa et. al. (2012) were also utilized. The result showed that the use of the "Pump It Up!" E-SIM has significantly increased the understanding of the lesson in the least mastered competencies in Circulatory and Respiratory Systems Working with Other Organ Systems. It showed a 0.07 normalized gain score which tells the difference between the post-test and pretest scores. This is confirmed by the paired t-test result of 7.825 with a 95% confidence level and p-value= 0.0000 at 1.729 critical value, hence, there is a significant difference between the pre-test and post-test scores. This E-SIM has a mean score of 3.52, "Strongly Agree" based on the Student Perception Survey. The study reveals that SIM can significantly increase the learners' performance on the least mastered topics. It is recommended that parallel studies be conducted to include E-SIM in regular classroom teaching routines.

Keywords: E-SIM; Underachievement; Remediation

LLI-II-012

College Students' Experience and Attitudes Towards Peer Feedback in Writing

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Abstract: College education is heavy on essay writing, term paper, book reports, etc. The class size in a university is rising, so individual writing instruction for a class with 35-45 students is impractical. The number of students would reflect the quantity of paper that the teacher receives and the amount of time he/she needs to be able to check and write meaningful feedback. Apparently, teachers cannot compromise the teacher feedback on students' output because students value and use it to write better. Hence, teachers should consider a variation in teaching writing beneficial for their students and for them. Recent studies introduced a collaborative work in the context of writing, the peer-feedback. This paper examines the usefulness of peer feedback in college students' writing by presenting their experience and attitude towards it, and proposing the potential of peer-feedback in content-based instruction. Theoretically, in the writing process, peer-feedback is placed in the "reviewing" stage as part of the "monitor" which teachers facilitate. In this study, an adopted questionnaire was modified based on the current research context to monitor the college students' experience and attitudes towards peer feedback in their Language classroom's writing activities. To validate the college students' answers, classroom observation and unstructured interview with the professors were conducted. Results confirm that peer-feedback is positively experienced by college students and their attitude towards it remains the same. However, since electronic peer feedback is seldom done in class, some college students in a local city university do not find it interesting and efficient. Nevertheless, they suggest the potential of peer feedback in content based instruction which is an indication of a more confident content and form critique for college students. Thus, teacher feedback is irreplaceable, but students should consistently be given an opportunity to comment to improve others' written output.

Keywords: peer feedback in writing; peer review; electronic peer feedback

LLI-II-013

A discourse analysis of the metaphors of teaching as reflected in the narrative reports of preservice teachers

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Abstract: This study is a discourse analysis of the conceptual metaphors (CMs) of teaching as reflected in the narrative reports (NRs) of the preservice teachers (STs) in Central Luzon State University. Using Lakoff and Johnson's (1980) Conceptual Metaphor Theory and Kövecses' (2010) Source Domains for Conceptual Metaphors, a content analysis of the 503 narratives written by preservice teachers from 2006 to 2014 was conducted. A total of 1,817 metaphorical linguistic expressions were drawn generating 49 conceptual metaphors for cooperating teachers (CTs), lesson plans (LPs), demonstration teaching (DT), and teaching (T). Findings reveal that STs' conceptual metaphors for CTs are that of a picture, LPs as tools, DTs as darkness, and T as a goal. These CMs assert that metaphors generated from the narratives are based on cognitive and social experiences of preservice teachers framed on their beliefs and ideals regarding the profession. Moreover, student teaching is believed to be a continuing process that puts impact on STs' cognitive and behavioral development, performing various social roles in adherence to the norms set by the society. Lastly, the beliefs, values, and ideals manifested in the conceptual metaphors derived from narrative reports may serve as valid instruments in the evaluation of Student Teaching Program of the said University.

Keywords: conceptual metaphors; preservice teachers; discourse analysis; narrative reports; content analysis

LLI-II-014

Structured Problem-Solving Approach for Physics Word Problems

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Abstract: This paper describes the implementation of an action research which is a part of a larger study that aims to design a sustainable enhancement course for non-Physics majors who are teaching Physics in junior high schools. The study sought to address the difficulty in solving Physics word problems of General Science pre-service teachers. This is done by identifying their misconceptions on selected Mechanics topics and teaching to them the structured problem-solving approach. The participants' responses to 30-item 4-tier multiple-choice test indicate that they believe that (1) a horizontal force acts on projectiles but (2) no work is done on it. Its vertical and horizontal (3) velocities can be interchanged while its (4) displacements can be used to determine the direction of its velocity. They think that (5) when potential energy is converted to kinetic energy (and vice versa), mechanical energy is conserved; (6) work done by gravity on a bouncing ball is zero when the ball stops bouncing; and (7) the momentum of an object does not change during a collision. After learning about the structured problem-solving approach, the solutions map indicate that the participants became more conceptual problem solvers after the sessions. However, more follow studies/sessions are necessary to establish this. Insights gained from the study by the researcher includes the value of asking the participants to provide an example and a non-example of the concepts, using small grouping for concept mapping activities;

conducting the sessions during the day; and increasing the sessions to 3 hours.

Keywords: Structured Problem Solving; Physics Word Problems; K-12 Spiraling Curriculum

LLI-II-015

Establishing Connections, Bridging the Gap: Library 4.0 and Its Role in Digital Humanities

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Abstract: This paper will reposition the DLSU Libraries as one of the key players in the academic community to support knowledge building by providing essential services to push forth lifelong learning. The paper will focus and assess the existing strategies that are in place to help the Libraries continue to reinvent itself in the digital humanities. As library development is often tied to technological developments, the paper will identify what services do the Libraries provide to improve user satisfaction and maintain its relevance in the emerging era of library 4.0.

Keywords: digital humanities, library 4.0, DLSU Libraries

LLI-II-016

The Semantics and Grammar of Maximizers

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Abstract: The objective of this study is to investigate the syntax and semantics of maximizers, a sub-category of subjuncts, one of the grammatical functions of adverbials. The study used a 1.4 million–word corpus of Senior High School academic writing outputs using Antconc, a concordance software. Using the semantics and grammar of adverbials of Quirk et al. (1985), the frequency of occurrences was explored, including its patterns, pre- and post-modification and emerging trends on functions in academic writing. The prevalent syntax of the maximizers is in the middle (M) and ending (E) position, with unique semantic functions compared from the prescribed usage of Quirk et al. (1985). Some functions presented in the paper are scaling upward favorable and unfavorable results, to scale approximation, definition, relationship and cause. Furthermore, the syntactical patterns in clausal level in using maximizers were enumerated to further understand its usage. Ultimately, this paper shows distinctive function and pattern of use of maximizers, which can be viewed as a notable feature of Philippine English grammar in academic writing.

Keywords: adverbials; subjuncts; intensifiers; maximizers; Philippine English

LLI-II-017

A Study on Hedges, Boosters and Lexical Invisibility in Political Blog Articles

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Abstract: This research focuses on the use of lexical hedges, boosters and lexical invisibility present in political blog articles. Writers have unique manners of constructing facts and relaying opinion. It is the responsibility of the readers to scrutinize the word choices interpreting the contention of the text. The corpus of this study is 150 tertiary students in 1st year and 3rd year universities in the Philippines. The framework of this research is based on Ken Hyland's (2000) similar study on Hedges and Boosters in Academic Text and Low's Lexical Invisibility Hypothesis (1996). Unlike the previous researches, the study focused on political blog article on the internet. The results show the complexity of understanding lexical hedges and boosters which lead to multiple function

understanding. Furthermore, this research demonstrates the direct and indirect evidence of apprehension with these lexicons.

Keywords: Hedges, Boosters, Political blogs, Discourse Analysis, Lexical Invisibility

LLI-II-018

Using Socio- Dramatic Play to Improve the Emergent Writing Skills of 4-5 year old Filipino Children

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Abstract: The purpose of the study was to determine the effectiveness of socio-dramatic play on the emergent writing skills of eight 4-5 year old Filipino children in one of the daycare centers in Parañaque city. The research aimed to answer two questions: Will there be a significant improvement of the emergent writing skills of the students who attended the intervention sessions? and How can the use of socio-dramatic play strengthen children's emergent writing skills? In order to answer these questions, the researchers used four instruments to measure the current emergent writing skills of the students that mainly focuses on their Conceptual and Procedural Knowledge based on the emergent writing framework of the NAEYC. These instruments were used for the pretest, the post test, and as the assessment during intervention. The data results were analyzed and presented through summary tables and a bar graph. Based on the pretest and post test results, there was a notable improvement on the emergent writing skills of the participants after attending the intervention sessions. Their print knowledge which is under Conceptual Knowledge, and their alphabet knowledge which is under Procedural Knowledge showed of significant progress while their pencil grasp which is under Procedural Knowledge, did not show of significant progress. In addition, it was proven that the intervention further developed the participants emergent writing skills especially through preparing a print rich environment, providing continuous scaffolding and encouragement, and enabling constant exposure to the intervention.

Keywords: Themed Socio-dramatic play, Emergent Writing, Alphabet Knowledge, Print Knowledge, Pencil Grasp

LLI-II-019

Effectiveness of Competency Based Strategic Intervention Materials in English 7

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Abstract: The teacher's main goal is to give a quality training to the students and guarantee that no student will be deserted. This is one of the actualized projects of the K to12 educational programs. In accordance with this, most educators broaden their time and endeavors past school hours in getting ready materials and instructional gadgets. Beside this, they likewise lead therapeutic classes for the students to effectively come up and create and ace their least aced abilities. The researcher, being one of the English teachers, looks forward for a higher quarterly examination results in English. In connection to this, the researcher had formulated a basis for providing competency-based intervention materials that will significantly increase the level of the quarterly test results. She also provided the learners various teaching-learning techniques that generally intend to increase the mean percentile score of the subject area. The z-computed value of 67.88 is greater than the z-tabular value 2.05 at 0.05 level of significance with 29 degrees of

freedom. Null Hypothesis is rejected. There is significant difference between the pretest and posttest of the respondents without strategic intervention materials. A capability building on Strategic Intervention Materials utilization focused on SIM was crafted based or using the findings of this study.

Keywords: English SIM; Competency Based; K to 12 Program; Intervention

LLI-II-020

Listening Difficulties and Needs of Grade 11 ABM students in Calatagan, Batangas

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Abstract: This descriptive analytic study aimed to determine the difficulties encountered by 59 (M=16; F=43) randomly selected Grade 11 ABM-strand students from Calatagan, Batangas. It also intended to identify their listening needs based on the problems they encountered when listening to an aural text. Using a mixture of two methods of data analysis, it quantitatively examined the listening difficulties of the participants and was expounded through the qualitative analysis of the data to provide a deeper understanding of the findings. The students were observed in an oral communication class using the observation checklist developed by Chang, Wu and Pang (2013) in order to assess their listening comprehension skills. Then they asked to were to complete a survey questionnaire adapted from Richards (2001) to identify their personal listening experience in their English classes. Lastly, in order to gain an in-depth understanding of the students' responses to the two sets of questionnaires, a focus group discussion (FGD) was held with randomly selected students for validation purposes. The questions prepared for this procedure were crafted, informed and guided by Munfangati's (2014) studies. It is hoped that the findings of this study will benefit curriculum developers and classroom teachers in choosing the appropriate content for their ABM students.

Keywords: listening needs; senior high school students; language teaching; needs analysis; learning needs and difficulties

LLI-II-021

An Analysis on the Preferred Learning Methods of Grade 12 STEM Visual Learners from De La Salle University - Manila

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Abstract: Visual learners utilize graphs, charts, maps and other forms of diagrams to better grasp the learning materials. Both traditional and digital learning strategies pose benefits and challenges to these types of learners. In this study, the positive and negative points of both traditional and digital learning methods from the perspective of Grade 12 Senior High School students of the University were analyzed in order to formulate a set of guidelines that software developers can use in designing digital learner applications that can cater well to the needs of visual learners. The study was conducted by administering pre-tests, post-tests, and surveys to two groups of visual learners, wherein one group was given traditional handouts as a reviewing tool while the second group used a digital learning tool, Khan Academy, on cell anatomy. Measurements of central tendency together with cluster analyses were then used to compare the differences in the final scores of the students from both groups on their pre-test and post-tests. Results show that for multiple choice items, students who used Khan Academy achieved a higher average increase in scores

compared to those students who used the traditional handouts. On the other hand, for test items that included the labelling of parts, the traditional handouts method was the more effective learning tool.

Keywords: online learning; traditional learning; khan academy; visual learners

LLI-II-022

The Efficacy of Creative Play Approach in Teaching Modern Physics

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Abstract: Creativity plays a vital role towards active participation and student engagement. Different creative play approaches have been introduced, but these were mostly done in the primary years of education. In this paper, the authors presented creative plays in teaching Modern Physics concepts. Twenty-one students from 3 groups, G10, G11 and G12 were given instructions using the Creative Activities and Technologies (Science CAT) program. The games were the Rutherford Ball Toss Game (RBTG), Hidden Shapes Game (HSG) and the Radioactive Journey Board Game (RJBG). Each game was designed to enhance the following skills of the students, namely, conceptual understanding, analysis of evidence from given data, interpretation of symbols and equations, problem solving skills, and confidence in answering test questions.
This paper utilizes the normalized gain and effect size in analysing quantitative data. The qualitative data were gathered from interviews with the students and the classroom observations. A Cohen's $d = 63.1349$ was noted from the comparison of the pre-test and post-test, denoting a high level of difference. Highest normalized gain $\langle g \rangle = 0.5$ was achieved by the RJBG on enhancing problem solving skills. The number of attempts in answering the achievement test increased compared to before the intervention. From the responses of the students, it was shown that the non-traditional and competitive nature of the play activities made it an effective tool in teaching modern physics to the student participants.

Keywords: creative play; modern physics; board game

LLI-II-023

A MOOC Camp-Based Flipped Classroom: Integrating MOOCs into University Curriculum

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Abstract: Massive Open Online Courses (MOOCs) are dramatically breaking borders and barriers to teaching and learning as they democratize access to quality international education for teachers and students across the globe. MOOC Camps provide an alternative framework to using MOOCs in the classroom aimed at fostering collaborative learning and engagement among participants. Utilizing a descriptive survey design, this study explored the affordances of integrating MOOC Camps into a flipped classroom. For five weeks during the first semester of the academic year 2018-2019, 1057 freshman students in a private university in Manila, the Philippines participated in MOOC Camps integrated into flipped classes. The students took English for Career Development, a MOOC developed by the University of Pennsylvania, funded by the U.S. Department of State, offered through the Regional English Language Officer (RELO) of the U.S. Embassy in the Philippines, and accessed through Coursera as a MOOC platform. Research data drawn from surveys and individual reflections from 711 respondents showed students‟ high satisfaction rates on the MOOC‟s aspects such as module topics, presentation of the course content, variety of activities, inter alia. The data also revealed students‟

positive insights on the use of MOOCs in the flipped classroom citing benefits such as meaningful learning experience, opportunities to create personal learning environments, among others. Pedagogical implications are offered in the light of these findings.

Keywords: MOOCs, MOOC Camp, Online Learning, Flipped Classroom, Connectivism

LLI-II-024

The Effect of Influence-Embedded Physics Instruction on Student Academic Performance

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Abstract: Students view physics as boring and difficult. A lot of studies has been casted on motivation and learning attitudes but the cases of underperforming and under motivated students still continues. Persuasion has always been a part of human daily interaction. It has and is used by all walks of life and has already perforated digital platforms. This action research sought to improve students' learning performance through Influence-embedded physics instruction (IEPI). The first round was carried out based on the PDSA cycle. IEPI utilizes the principles of persuasion according to Robert Cialdini and the Fogg Behavior Model (FBM), a persuasion model designed by B.J. Fogg. This was given to two intact sections of underperforming Grade 9 students of a public school in Cavite, Philippines as they cover impulse and momentum, work, power, and energy, and electricity and magnetism. The principles and model were applied to student's classroom activities, discussion, and provided learning materials. Standardized pre-test and post-test scores were used to gauge students learning for every module. Results show that IEPI helped students learn more because they were more motivated and able to accomplish their tasks that they enjoyed their activities, and that proactive use of Filipino made concepts easier to understand and discussions less daunting. Journal entries and interviews revealed that the most effective persuasion principles in improving student performance were reciprocation, liking, social proof, and scarcity.

Keywords: Cialdini, persuasion, Fogg Behavior Model, Academic Performance, Public High School Grade 9, Physics, Underperforming students

LLI-II-025

Does Flexible Assessment Lead to Greater Student Engagement? Evidence from a Randomised Trial

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Abstract: Flexible assessment is the practice of allowing students some autonomy over how their grades are calculated, e.g., allowing them to assign the highest weights to the type of assessment they favour. Self-determination theory predicts that when students participate more actively in their own evaluation, they will end up more engaged within their classes and improve their learning outcomes. In this paper, we report the results of a small-scale experiment we conducted, in which similar classes under the same professor were either randomly assigned to a flexible assessment treatment or traditionally assessed (with the professor exclusively deciding the weights). We found that flexible assessment – in this case allowing students to transfer up to five percentage points to their favoured output – raised their grades and academic performance ...but had no significant impact on their engagement, as measured by Canvas' online metrics.

Keywords: flexible assessment; pedagogy; classroom experiments

LLI-II-026

An Assessment of the e-Learning Management Systems Used by Philippine Insurance Agents of an International Financial Organization

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Abstract. Ramlife Financial Corporation (RFC) is a leading international financial services organization that helps people make their decisions easier and lives better by providing financial advice, insurance, as well as wealth and asset management solutions for individuals, groups, and institutions. As RFC continues to succeed on its business operations, several developments have been taking place in order to continue their services and purpose in the industry. Two of these developments are the e-Learning Management Systems (e-LMS) that are used to train the organization's aspiring Insurance Agents namely – The Red 7 Protocol and Red Galaxy.

This paper assesses these e-LMS with respect to the satisfaction of its primary stakeholders namely the Associate Unit Heads (AUH) and Insurance Agents. It used the descriptive-narrative method and quantitative analysis for the collected data. Samples were from the AUH of its Palawan branch while other data were taken from their Insurance Agents. A survey questionnaire for the AUH was administered using Ozkan, et.al's Hexagonal E-Learning Management Assessment Model (HELAM). RFC's top management involvement is very consistent since there is a positive degree of interest, enthusiasm, support, or participation from any management level above the user's own level toward computer-based information systems or services or toward the computer staff which supports them. The quality of the information and content in the systems provide a clearer knowledge for aspiring Insurance Agents with presentations that cover all the necessary information they have to acquire before taking the Insurance Commission Licensure Examination. While there are some technical qualities that satisfy the users of the e-LMS, there are also several unsatisfactory issues that users find to be in the systems. One of these issues is the lack of the systems to allow updates in the existing content.

Keywords: e-learning; e-Learning Management System; information system; LMS assessment; gamification in training

LLI-II-027

Social Responsibility and Involvement of Young People

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Abstract: The study looked into the profile of college students in Manila by documenting their level of social responsibility and youth involvement. Using the Youth Social Responsibility Scale (YSRS), the Youth Involvement Inventory (YII), and interviews with the respondents, the data obtained in the study affirmed the notion that young Filipinos feel that they have a responsibility to make a positive contribution to the community they live in. The YII profile of the respondents showed that they express their social responsibility through helping activities (visiting people who were sick; serving as a member of an organization; volunteering for a charity organization) and responding activities (giving help e.g., money, food, clothing, rides to friends or classmates who needed it; donating for a cause). When the participants who obtained highest scores in the different sub-scales were asked where they learned how to be

socially responsible and be involved in many youth activities, four of the eight interviewees identified family members, three respondents considered school activities, and one mentioned personal experience as the influencing factor.

Keywords: social responsibility; youth involvement; Filipino youth

LLI-II-028

Open Innovation and Changing IP Strategy in the Fourth Industrial Revolution

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Abstract: This paper provides firms a framework on how to create an IP strategy in the context of open innovation and Industry. A systematic review of literature was used to create the framework from existing studies relating open innovation and intellectual property. Synthesis of these articles lead to the creation of a five-part framework which starts with (1) recognizing IP as a valuable asset to the firm and conducting an internal IP audit; (2) Factors that can affect the firm's participation in innovation, (3) Methods of protecting IP in open innovation; (4) Utilizing the firm's IP portfolio and (5) strengthening the firm's IP portfolio through internal or external innovation sources.

Keywords: Open innovation, IP strategy, Industry 4.0

LLI-II-029

Palawan Technological College, Inc. e-Learning Management System: A Feasibility Study

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Abstract: The use of Information and Communications Technology (ICT) in the teaching-learning process has influenced various dimensions of human communities especially educational institutions. The effective integration of technology into the classroom has improved the tools and methods used in the teaching-learning process. This paper aims to assess the readiness of Palawan Technological College, Inc. (PTCI) in the implementation of an e-Learning Management System (e-LMS) based on the perspective of its faculty, staff, and administration and using the determining factors namely, human, support, cultural, infrastructural, and pedagogical. These factors were used for data collection as indicators for the technical, operational, economic, and schedule feasibility of a system. Descriptive method and quantitative analysis of data were used in the study. The target sample of the study was ten people composed of faculty and administrative personnel. The sample was selected using random sampling technique from the employees of the Palawan Technological College, Inc. (PTCI). A questionnaire was designed and divided into two parts. The first part were questions in which respondents only have to point their score in the Likert-scaled options. The second part contained direct questions yes/no and open-ended interview-type questions containing opinions of the respondents on the factors influencing the use of ICT to make teaching-learning effective in a technological school. Chronbach Alpha was used to test the reliability of the Likert-scaled survey questionnaires. Descriptive statistical methods including frequency, percentage, average and mean were used to analyze and interpret the quantitative data of this study. Technical, operational, economic, and schedule feasibility falls to different levels of preparedness on the implementation of an e-LMS. Finally, this research shows that the Palawan Technological College, Inc., is moderately ready for the implementation of an e-LMS. Cost-wise, the school has the

potential to run a successful electronic learning system.
Keywords: e-Learning Management System; information system; teaching and learning process; feasibility study; school system

| LIVING CULTURE & CONTEMPORARY SOCIETIES

LCCS-I-001

Nang Maiwan ang Haligi: Mga Kuwentong Karanasan ng Ilang Single Dad sa Pagharap sa Buhay Bilang Solo-Parent

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Abstrak: Sa tulong na rin ng midya, mas nagiging bukas na ang pananaw ng lipunan pagdating sa konsepto at/o sitwasyon ng hindi buong pamilya. Gayon man, kalimitang mas napagtutuunan ng mga palabas ang naratibo ng single mother. Kung mayroon man para sa single dad, kadalasang negatibo ang ipinakikita sa kanilang imahen tulad ng pagiging pabaya o pagkukulang sa pagkalinga sa mga anak. Sa ganitong diwa, nilalayon ng papel na ito na masipat ang naratibo ng mga single dad sa Pilipinas sa pamamagitan ng interbyu. Kinapanayam ng mga mananaliksik ang tatlong single dad na mula sa tatlong magkakaibang kategorya: (a) Unwed o hindi kasal; (b) widowed o biyudo; at (c) annulled o hiwalay sa asawa. Pangunahing naging tuon ng mga interbyu ang pagtalakay sa mga hamon na kinaharap ng mga single dad sa pagyakap ng tungklin bilang solo-parent. Mula rito, ilalahad ng papel ang mga kuwentong karanasan ng mga nakapanayam na single dad batay sa kinapapalooban nilang kategorya. Lumabas sa pag-aaral ang ilan sa mga problemang kinahaharap ng single dad kaugnay ng pagiging isang solo-parent tulad ng kawalan ng katuwang sa buhay, at sabay na pagkayod at pag-aaruga sa mga anak. Sa kabila nito, patuloy nilang pinanghahawakan ang responsibilidad sa anak at sinisikap na magampanan nang mabuti ang tungkulin bilang solo-parent. Bukod pa, lahat din sila ay umaasang makatatagpong muli ng makakasama sa buhay upang mabigyan ang mga anak ng buong pamilya.

Mga Susing Salita: Single dad; single father; solo-parent; kuwentong karanasan

LCCS-I-002

Critical Discourse Analysis of the Online Indian-English Newsletter

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Abstract: This study uses Systemic Functional Linguistics (SFL) to reveal how articles in an online Indian –English newspaper capitalize on various linguistics items such as the mood element, the personal pronouns, and the modal verbal operators to navigate the minds of their readers to view the texts and these writers of the texts in a positive way. In particular, the study examines three Indian newsletters, all written in English and that are accessed online. Analysis of the articles in the online newsletter reveals that the writers use three emergent frames. These thematic frames are positivity, vacillation, and evasion. The frame of evasion reflects the kind of attitude Indians possess in terms of avoiding outright antagonism and this is manifested as well in the Indian culture. Precisely because of the linguistic choices that they employ, the online newsletters are able to negotiate their ideology without appearing to provoke anger from their readers. The findings have several significant implications to the areas of critical discourse analysis and intercultural communication. One, the connection between language and culture is not to be discounted. Two, the language used by the writers represents the writers' identities and how they want to be viewed in the intercultural community/ies they are writing for. In this case, since the medium of communication is online, their reach of representation is on a global scale.

Keywords: critical discourse analysis; intercultural communication; evasion; vacillation; positivity

LCCS-I-003

Relationship Competency Scale Using The Social Emotional Learning Theory – An Exploratory Factor Analysis

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Abstract: This endeavor developed a tool that measures the relationship competency of college students based on the Social Emotional Theory (SEL). The items gathered were from the extensive reviews of related literature on the four sub-competencies of relationship skills of SEL such as: communication, social engagement, relationship- building and teamwork. These items were examined carefully by the expert validators resulting to 40 items. This 4-factor modeled instrument were administered to the 680 college students (N=680) wherein 345 were female and 335 were male with a mean age of 18 years old. The Exploratory Factor Analysis (EFA) yielded a new 7-factor model with 36 accepted items. However, due to the limited items in the new 3 models only the 4 original factors were considered. The reliability of the items was established through Cronbach's Alpha with a consistency value of .89 for teamwork, .88 for social engagement, .82 for relationship-building, and .72 for communication. This tool can be of help in gauging the relationship skills of the college students leading to the proper design in employing college counseling programs in the future.

Keywords: Social Learning Theory; relationship skills; competency scale

LCCS-I-004

Teaching Intercultural Communicative Competence: The Perspective of Philippine ESL Teachers

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Abstract: In the 21st century, ESL does not focus on linguistic competence and language proficiency alone but also on intercultural communicative competence or the ability of someone to communicate effectively and appropriately in English within a culturally diverse society. This study attempts to shed light on the current status of Intercultural Communicative Competence teaching based on the perspective of the Philippine ESL teachers. The participants of this study were fifty ESL teachers who were selected purposively. In order to collect data, this study used Likert scale questionnaire and a semi-structured interview with nine public school teachers. Findings showed that teachers acknowledge the importance of ICC and they have positive perceptions of incorporating it in English language teaching however ICC teaching still remains vague for most of them. Due to lack of awareness and relevant trainings, most of the participants feel that they are not interculturally competent enough. Lastly, most of the participants perceived that ICC should be done through implicit teaching and they also revealed that the common classroom practices on culture integration involve modelling or showing respect and sensitivity to others, making connections, using literary text as springboard, and role playing. The findings of this study would be instrumental in creating new ICC activities, teaching models and lesson exemplars in the Philippine context; moreover, they could be used as bases for developing teacher training programs that will guide teachers on how to incorporate ICC in their ESL classes.

Keywords: Culture; Intercultural Communicative Competence (ICC); English as Second ;Language; English Language Teaching

LCCS-I-005

Out of the Closet: The Role of Gay Men as Reflected in the Philippine Advertisements

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Abstract: Roles of men and women in a society is reflected upon how they are

portrayed in various advertisements (Salonga, 2018). However, in the Philippine society that is known to be top 10 among the "gay-friendly" countries (Tubeza, 2013), no recent study has validated this claim. Hence, this paper attempts to explore how the Philippine society views the roles of gay men in its society based on how they are portrayed in television and Internet ads. Using the Social Identity Theory as the study's framework, this research adapted the study of Salonga (2018) and Oakenfull and Greene (2005). In addition, this study uses content analysis and multimodal approach to dissect the cultural, linguistic components of the adverts that present various rules and roles that are assigned among gay men. Still an ongoing study, the preliminary findings reveal that gay men are viewed to have superficial roles in the Philippine society. However, the recent gay advertisements are used as tools to correct wrong notions about them. Thus, maximizing the capacity of the advertisements to be the platform in reshaping the current roles of gay men in the Philippine society.

Keywords: sociolinguistics; language; gender; gay studies

LCCS-I-006

Taking Pride on Tattoos and Piercings: The LGBTQ Communities of La Union

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Abstract: Due to the evolution of our society, one's emotion or life story cannot only be seen in forms of literature or speech but also in the form of "body art" like Tattoos and Piercings. Nowadays, the LGBTQ Community has used body art as a way to cope up with their different experiences and to express themselves. Although possessing body art can be a difficult process, physically and mentally, as some undergo painful procedures and experience discrimination that affected their careers due to these tattoos that can be seen negatively. The researchers aimed to analyze the meanings of the tattoos among the LGBTQ members. For this phenomenological study, the researchers gathered data by conducting a semi-structured interview to LGBTQ members who possess tattoos. To further justify our research, pictures of the tattoos were taken. Based from their responses, they are motivated by the people close to them and others are motivated by the life-changing experiences they had. The symbols of their tattoos where mostly animals that represent emotions like freedom and love while some are symbols of their organization. The tattoos may differ from their sizes and designs but the similarity is that it represents an important mark that changed their lives. With the data gathered, the researchers concluded that tattoos is more than just an aesthetic but it serves as a platform to express one's experiences and a reminder that one has dealt with an obstacle and was able to show it through art.

Keywords: LGBTQ; tattoos; expression; identity; discrimination

LCCS-I-007

Estado ng Edukasyong Pansining Biswal sa mga Piling Pamantasan sa Pilipinas

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Abstrak: Ang kolektibong sanaysay na ito ay nagtatasa sa kalagayan at estado ng

edukasyong pansining biswal sa mga piling pamantasan sa Pilipinas. Sakop ng papel ang mga sumusunod na paaralan: Politeknikong Unibersidad ng Pilipinas, De La Salle-Lipa, Mindanao State University-Iligan Institute of Technology, at Notre Dame of Marbel University. Dalawang tanong ang tinangkang sagutin ng papel: Una, ano ang estado ng edukasyong pansining biswal sa mga piling pamantasan sa Pilipinas? Pangalawa, ano-ano ang mga posibleng solusyon sa mga suliranin na nakahahadlang sa patuloy na pag-unlad ng edukasyong pansining biswal? Isinagawa ang panunuring dokumentaryo at pakikipanayam sa mga tagapangasiwa ng sining kultural at pang-akademiko. Upang masagot at matalakay nang lubos ang katanungan, ang mga may- akda ay nagkaroon ng tuon sa dalawang parametro: panloob (pamamahalang pang-akademiko tulad ng pagtatalaga ng guro, paghahanda sa mga kagamitan at kasanayan,at kawalan ng tuon sa edukasyong pansining) at panlabas (suporta mula sa mga institusyong nasa labas ng pamantasan). Sa dulo ng papel, natuklasan ang mga karaniwang suliranin na kinahaharap ng mga pamantasang sakop ng papel- pananaliksik na ito; may mga payak na rekomendasyon ding pinanukala ang papel.

Mga Susing Salita: edukasyong pansining biswal; PUP; DLS-Lipa; MSU-IIT; NDMU

LCCS-I-008

PINARES-PINAS: Pananaw at Pagpapahalaga ng mga Pilipino sa Sining Biswal

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Abstrak: Ang PINARES (PINta-ARkitektura-ESkultura) ay bahagi ng masining na pamumuhay ng isang lipunan. Itinuturing na mabisang daluyan ng ekspresyon ng mga ideya, nararamdaman, interpretasyon ng pangyayari at danas ng indibidwal at komunidad. Walang unibersal na kahulugan ang sining. Iba-iba ang lebel ng pagpapahalaga at pagtingin sa sining na naaapektuhan nang malaki sa konteksto ng lipunan kung saan ito nililikha at tinatangkilik. Sa Pilipinas, mababatid na maraming isyu ang umuusbong hinggil sa pagpapahalaga nito. Ayon kay Guillermo, may tatlong salik na nakaapekto sa hindi pagkakapantay-pantay ng lipunang Pilipino pagdating sa sining— 1) Estado sa lipunan at ang pagkakaiba ng edukasyon at oportunidad; 2) Pagkakaiba ng lungsod at probinsya; at 3) Pluralistikong karakter ng lipunang Pilipino. Sa kabuuan, malaki ang epekto ng estado sa lipunan at heograpikong lokasyon sa pagpapahalaga ng sining sa bansa. Ginamit ng mga mananaliksik ang mga nabanggit na mga salik bilang konseptwal na saligan sa pagtakay sa problemang kinahaharap ng sining-biswal ng Pilipinas. Sa tulong ng mga datos mula sa mga umiiral na pananaliksik, estadistika, at sarbey na ipinadala sa mga piling guro at mag-aaral, natukoy ng mga mananaliksik na ang sining ay pang-elitista dahil sa mataas na halaga nito sa auction houses. Gayundin, natagpuang kulang sa kasanayan at kaalaman ang mga guro na nagtuturo sa sining at sanhi na rin ng pagbaba ng interes ng mag- aaral pagdating sa pinta, arkitektura, at eskultura. Maliban dito, mababa naman ang kasalukuyang bilang ng mga museo lalo na sa mga probinsya na mahalaga sa pagpapanatili ng kultura, tradisyon, at identidad ng mga Pilipino.

Mga Susing Salita: Sining biswal; Pinta; Arkitektura; Eskultura; Pananaw; Pagpapahalaga

LCCS-I-009

Diverse Attachment between Humans and Robots

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Abstract: Robotics throughout the years, it has become a foundation that continues to open doors to many opportunities that lead to a greater impact in our society. Therefore, it is a must to understand the capabilities of both humans and robots creating a co-operative relationship between them that can strengthen the bond. The main goal of our study is to be able to spread awareness on how robots or automatons can give us an advantage in life, how it can assist us in the things we need to do, especially towards the minority: those who have special needs that can possibly be catered by robots. The theoretical framework is based on how a robot's behavior can be evaluated by comparing it to another entity which is also capable of social interaction, which, in this case, are PWDs. The process we used for Data Procedures are by using Coding, Thematization and Triangulation. With the data gathered by the researchers, functions and applications of robotics among people with disability were analyzed. The Human Robot Interaction among the perspective of PWD's such as its relationship and challenges of integration were also effective as it gives them a keen understanding that this could also benefit and help them physically and mentally. We researchers conclude that the interview conducted gave us the opportunity to discover and understand the PWD's. With this, it serves as a foundation that continues to develop and open doors to many opportunities that lead to a greater impact in our society.

Keywords: Robotics ; PWDs ; Technology ; Prosthetics ; Impairment

LCCS-I-010

Lasallian Discernment: A Communal Reflection Method

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Abstract: Can one speak of Lasallian discernment in the same way as Ignatian discernment? Despite not being a household term, Lasallian discernment does exist with its own method and criteria. Through a critical analysis, this paper would like to present Lasallian discernment as a distinct method in discerning God's will. An essential feature of Lasallian discernment is the focus is on the vocational and social environment of the discerner in contrast to the Ignatian discernment of spirits that is ultimately focused on the interior movements of the individual discerner, thus very personal. The differences do not make any of the methods better, rather, it points out the diversity of possibilities by which God wishes to manifest his will and desires. When speaking of discernment, it is often referred to Ignatian discernment given its popularity and overall practicality. The Church owes much to St Ignatius, the Jesuits, and their associates for making Ignatian spirituality, methods of prayer and discernment accessible to all. On the other hand, Lasallian spirituality, methods of prayer and discernment did not become as popular. Well, it was not promoted in the same way as the Ignatian method was; it had a distinct audience of educators and students. The understanding of the spirituality of St John Baptist de la Salle began to unfold only in the 1960s with various scientific studies being conducted by the Christian Brothers themselves.

Keywords: discernment, spirituality, Ignatian, Lasallian

| SOCIO-ECONOMIC AND POLITICAL LANDSCAPES

SEPL-I-001

Inflation is Primarily a Monetary Phenomenon

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Abstract: The primary cause of inflation is the continuing increase in the quantity of money being issued by a Central Bank, relative to the amount of goods and services being produced in the economy. Any other factor which raises prices simply adds on to the built in inflation caused by money creation. When government gets easy access to this new money, in effect a greater quantity of money starts chasing after the same amount of goods and services which consequently forces prices to increase. The paper uses a descriptive as well as a historical approach in discussing the causes of inflation. It uses a theoretical framework which focuses on the quantity theory of money in order to explain why inflation is first and foremost a monetary phenomenon and why any other factor outside of the expansion of fiat
currency simply remains as a secondary contributor to the sustained increases in prices in the long run. Since the fiat money system imposed by the Central Bank is a debt based money system, any sustained increases in the quantity of money will always create more public debt since the creation of new money must be backed up by a government bond that guarantees more taxation in the future. Chronic deficit spending financed by monetizing public debt is responsible for creating inflation that reduces the value of money, increases the cost of all goods and services and reduces the value of real income leading to a decline in living standards. Inflation over several years reduces the value of real wages and salaries, savings, pensions and other retirement benefits. Inflation is a hidden tax and is shouldered
by every income earning individual. Deficit spending funded by the Central Bank's creation of new money allows government to continually spend beyond its means and transfer this cost to the general public in the form of inflation and a guaranty of more taxation in the future.

Keywords: Inflation; fiat currency; deficit spending; government bonds; public debt;

SEPL-I-002

Future Time Reference Among Bilinguals in an Investment Experiment

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Abstract: Future time reference describes an aspect of language — that is, whether a language has rules that grammatically distinguish between present and future. Languages that require users to separately mark present and future are called strong future time reference (strong FTR) and those that do not are called weak FTR. Chen showed in 2013, using World Values Survey data, that speakers of weak FTR languages save more, and generally exhibit more future-oriented behaviour. We extend this research on language and behaviour in three directions: first, by using controlled laboratory experiments rather than survey data, second by focusing on bilinguals who may speak a combination of strong and weak FTR languages, and third by looking at investment choices between risk-free and risky
assets. We find that bilinguals whose primary language is strong FTR are 14 to 16% more likely to invest than bilinguals whose primary language is weak FTR, and are also more likely to choose riskier assets when investing.

Keywords: language and behaviour, future time reference, investment behavior

SEPL-II-003

A Decomposition Analysis of Wage Inequality in the Philippines

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Abstract: The data suggests that, in the Philippines, the wage gap between the 90th (highincome earners) and 50th percentile (middle-income) wage groups has been declining. As such, we aim to study this upper-tail wage inequality further by decomposing wage data using the October rounds of the Philippine Labor Force Survey (LFS) from 2007 to 2017 and by looking at trends in wages and employing two mutually exclusive methods. For the trend in relative wage changes, we observe that between the 90th and 50th percentiles of the wage distribution, the wage gap increased from 2007 to 2012 and decreased from 2012 to 2017. For the daily log wages for 2007 and 2017, we find that female workers belonging to the upper half of the wage distribution earn higher than males. In performing a simple regression, we find that 90-50 wage gap among each sub-group of gender, location and educational attainment is decreasing from 2011 to 2017. Furthermore, the 90-50 wage gap among nonNCR workers is greater than the 90-50 wage gap among NCR workers. A similar result is found between the wage gap among males and females, with a higher disparity for the former. For the standard variance decomposition method, the results show that overall
variability in female wages explained by age, education and region is 48 to 55%. However, the overall and upper half variability in wages of males, NCR workers, non-NCR workers, high school graduates and college graduates are better explained by other factors ("within" variables) such as work experience or the worker's type of job.

Keywords: wage inequality; decomposition; labor market; labor economics

SEPL-II-004

A Sociocultural Model of Youth Political Disengagement: Political Distrust amidst Varying Country Contexts

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Abstract: Although youth's growing sense of agency is a motive for political engagement, a sizable number has been politically disengaged. If political engagement is construed in the Vygotskian sense as mediated by the economic and sociocultural context, then countries' prevailing levels of political engagement should covary with their economic and sociocultural conditions. Country profiles, however, do not readily reveal this covariation. Youth political disengagement is present in various types of countries: economically developed countries with a strong democratic system, economically developing countries who are transitioning to democracy, and countries experiencing political unrest or disorder. This study aims to determine systematic covariations among youth's political disengagement and their countries' economic and sociocultural conditions. Cluster analyses were conducted on the 2004 and 2014 citizenship modules of the International Social Science Programme. Cluster 1 (high-income countries, many from Western Europe) shows that high levels of trust and engagement are built on strong economic and pro-democratic sociocultural foundations. The kind of political exclusion that youth experience in different contexts is suggested by Cluster 2 (from various regions and of differing income classes) and Cluster 3 (countries with marked social inequality). Distrust and disengagement acting in synchrony is a potential mark of exclusion amidst favorable economic and democratic cultures (Cluster 2). On the

other hand, disengagement unaccompanied by distrust is a potential mark of exclusion amidst unfavorable sociopolitical conditions (Cluster 3). Implications to political socialization of youth are discussed.

Keywords: International Social Science Programme; political distrust; sociocultural model; Vygotsky; youth political disengagement

SEPL-II-005

An analysis of the risk-return profile of the daily Bitcoin prices using different variants of the GARCH Model

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Abstract: The introduction of the Bitcoin ushered in a new era – the era of virtual or cryptocurrencies. Since its maiden appearance in 2009, the price of Bitcoin has realized spectacular growth and wild swings, from a little less than US$70 per coin during the mid-2013 to about US$20,000 in the late 2017; with current price (March 2019) hovering around US$4000. Bitcoin is actively being traded against more than 30 hard currencies on well-organized virtual exchanges, and its exposures can now be hedged in its own futures market. Hailed as the currency of the future, the phenomenal success of Bitcoin spawned the entry of more than 1,600 virtual currencies with esoteric names such as quackcoin, etherium, anoncoin, Zcash, etc. Bitcoin however, account for more than the combined shares of all other cryptocurrencies, making it the overwhelming market leader. Analyzing the riskreturn profile of this exotic investment instrument might be worthwhile to a whole range of stakeholders – investors, financial analysts, managers and speculators. This study aims to analyze the statistical properties of the daily bitcoin prices, focusing on its risk-return characteristics using the different variants of the GARCH (Generalized AutoRegressive Conditional Heteroscedasticity) model. Two distinct families of GARCH models are employed in the study namely (1) APARCH (Asymmetric Power ARCH) which includes the following: classical ARCH, vanilla GARCH, GJR (Glosten Jaganathan and Runkle), TARCH (Threshold ARCH) and the NARCH (Nonlinear ARCH) models, and (2) The EGARCH (Exponential GARCH) variants. Stylized facts analysis and modeling results confirm the high-level volatility structure, absence of leverage effects and significantly positive long run average return. Possibility of bubbles however is seen.

Keywords: Bitcoin; Cryptocurrency; Risk-return Profile; GARCH Models

SEPL-II-006

Unraveling Market Links: Modelling Downside Market Risk Transmission Between the US and ASEAN-5 Stock Markets

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Abstract: Given the recent strides towards globalization in the past decades, international markets are ever becoming more integrated. With this in mind, the paper aims to investigate the underlying links that bind and affect different stock markets across different countries - namely, the risk transmission mechanisms rooted between the US and ASEAN-5 stock markets. Through the cross-quantilogram function and vector autoregression (VAR), we examined extreme downside market risk spillovers, measured through a market index's Value-at-Risk, between the chosen stock markets. The results verify the existence of risk interdependency between the US and ASEAN-5 stock markets, with the US market movements having the greatest predictive power towards the other

markets. Despite this, we also observed smaller yet significant effects from the ASEAN-5 stock markets transmitted to the US, implying the presence of the feedback effect. Lastly, initial results show that despite the quick response of the ASEAN-5 markets to US shocks, it takes a prolonged period of time for the shocks to be completely absorbed.

Keywords: ASEAN; Risk Transmission; Value at Risk; VaR for VAR, Cross-Quantilogram

| SUSTAINABILITY, ENVIRONMENT AND ENERGY

SEE-I-001

Highway Roadside Unit Deployment Schemes Based on Empirical Mobility Traces

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Abstract: Intelligent Transportation Systems (ITS) will rely on information exchange among vehicles and infrastructure to deliver an efficient and comfortable mode of travelling. One of the most critical components of an ITS is the presence of roadside units (RSUs) for storage, computation and data processing. In this work, deployment schemes are presented to determine which part of a highway can be considered as a candidate location by employing empirical vehicular mobility traces. Results show that a simplistic approach can readily determine these possible locations at the fastest runtime, while achieving maximum coverage and connectivity among vehicles and infrastructure.

Keywords: Roadside Unit Deployment Schemes; Empirical Mobility Traces; Highway Setup

SEE-I-002

Partial Cement Replacement with Fly Ash and Powdered Green Mussel Shells for Masonry Blocks with Plastic Waste Aggregates

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Abstract: Inclusion of waste materials in concrete is done in an effort to address environmental concerns and to possibly enhance concrete properties. Previous studies have incorporated fly ash and powdered green mussel shells into concrete as partial cement replacement. The studies have shown that these materials have the potential to increase the compressive strength and provide lower cost. Another study used plastic as partial substitute for aggregates in masonry blocks, popularly known in the Philippines as CHB (concrete hollow blocks). However, it resulted to a decrease in compressive strength. With fly ash and powdered mussel shell being able to improve the strength of concrete mixes, this study was done to investigate whether the same materials would be able to improve the strength of CHB with plastic waste aggregates. The study used varying amounts of fly ash and powdered mussel shell as partial replacement to cement in CHB with and without plastic waste aggregates. A total of 320 CHB specimens were tested in the study. The decrease in strength due to the addition of 2.5% plastic waste aggregates was offset with the addition of fly ash or powdered mussel shells. Fly ash was found to be more effective at 30% cement replacement, while 10% for powdered mussel shells. However, when the two were combined as cement replacement, beneficial effects were seen only at certain select mixes. At combined fly ash and mussel shells, the recommended cement replacement is 20% for CHB with plastic waste aggregates while 10% for CHB without plastic waste aggregate.

Keywords: cement; concrete; CHB; fly ash; mussel shells; masonry; plastic waste

SEE-I-003

Response Surface Modelling of Concrete mixed with Fly Ash and Recycled HDPE

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Abstract: Concrete is among the widely used structural materials due to its versatile properties, however, it has negative environmental impact due to the production of some of its components, such as cement. Cement production is energy-intensive and emission-intensive because of the amount of heat needed during manufacturing. Many studies have been conducted locally in the use waste materials as a substitute to some of construction materials. In this study, it is aimed to create a model through the use of Response Surface Method that optimizes the strength of concrete mixed with Fly Ash and HDPE. There were 2 independent variables: the percentage of HDPE substitution and the percentage of fly ash substitution. The percentage of HDPE substitution were 0%, 5%, 10% and 15% by volume of fine aggregates. The percentage of fly ash substitution were 0%, 30%, and 60% by weight of the total binder. It was observed that the concrete with higher fly ash content had higher percentage increase in the strength after 28 days. HDPE as fine aggregate replacement slightly increased or did not have a significant effect on the strength. A Response Surface Model was created to predict the compressive strength, given the mix proportion of HDPE and fly ash, an equality line was used to validate.

Keywords: HDPE, fly ash, concrete, Philippines, response surface method

SEE-I-004

GIS for Better Public Transportation and Transit

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Abstract: Transits are means of providing equal access between travelers. They reduce traffic congestion and ease environmental problems caused by private vehicles. Transport experts should try to plan a good public transit system for the people. Because of the nature of data in transportation modelling, there is difficulty in analyzing and updating spatial data. The Geographic Information System (GIS) applications for transit system modelling include transit service area analysis, data attribution, network representation, transit demand, transit distribution, linking transportation systems, among others. Research studies that utilizes GIS to shape their research in terms of public transportation and transit were collated. Method in achieving the objectives are not exclusive to GIS methods. But in this paper, the focus is on the GIS aspects due to a broad range of methodologies. The outputs or findings is presented after from route optimization to spatial analysis. The ability of GIS to combine large amounts of data from different sources makes them a powerful tool. From volume data to population density, level of service and accessibility can be determined. From there route optimization and other transport planning may be further analyzed and developed.

Keywords: Transit, GIS, Spatial. Transportation, Data

SEE-I-005

The use of in vivo mouse bone marrow micronuclei test and Atomic absorption spectroscopy for environmental biomonitoring of the aquatic bodies in and around Metro Manila, Philippines

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Abstract: The combination of in vivo mouse bone marrow micronucleus assay with atomic absorption spectroscopy has been used as an assay system for environmental biomonitoring of the polluted water bodies specifically the two Esteros namely - Estero de Vitas and Estero de Paco, belonging to

thr Pasig River System, Philippines. As part of the strategy, the Esteros are being rehabilitated to control pollution in the river systems whereby Estero de paco was recently rehabilitated whereas Estero de Vitas is still largely neglected. The elevated levels of micronuclei observed in the erythrocytes of the genetic model, the Swiss albino mice exposed to water samples from both sources indicate the presence of genotoxic and hazardous pollutants in the water bodies of Estero de Paco and Estero de Vitas. Further, the water samples from Estero de Vitas was found to be far more genotoxic as compared to the water samples from Estero de Paco ($p<0.05$). The observed genotoxic effects of the water samples appeared to be related to the physicochemical characteristics studied using Atomic absorption spectroscopy, which showed the presence of heavy metals in the water samples from both sources. The AAS technique was also used to detect the presence of heavy metals in the mouse tissue exposed to the water samples from two locations to further confirm the probable source of genotoxicty. The results establish that the mouse micronucleus test in combination with AAS can be used effectively for environmental biomonitoring. The lower genotoxicity potential of Estero de paco clearly demonstrates that the restoration of the Esteros can be an effective approach to control pollution of the water bodies especially the Pasig river system.

Keywords: Genotoxicity; Mouse bone marrow; micronuclei; Heavy metals, Environmental biomonitoring

SEE-I-006

The Interplay between Arts and Waste Management: A Phenomenological Study

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Abstract: 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.

Keywords: waste; education; liability; upcycling; utilization

SEE-I-007

Effect of particle size on the photocatalytic activity of Ag3PO4

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Abstract: Silver orthophosphate (Ag3PO4) is a visible-light-active photocatalyst capable of advanced oxidation processes. This paper explores the effect of particle size on the photocatalytic activity of silver orthophosphate. The photocatalyst was synthesized via ion-exchange precipitation reaction using silver nitrate (AgNO3) and sodium monohydrogen phosphate (Na2HPO4). Particle size control was achieved via five different drop rates of the phosphate solution. Synthesized catalysts were washed with distilled water three times and oven dried at 60oC overnight. Elemental composition was determined using Shimadzu EDX-7000 and particle sizes were measured using ImageJ on the SEM images of the catalysts. Analysis confirmed five different particle sizes of the catalyst and statistical analysis using One-way ANOVA and Tukey-Kramer test revealed 6 out of 10 comparisons are significantly different. Photocatalytic activities were tested on Rhodamine B solution (10ppm). Fifty milligrams (50mg) of the catalyst were mixed with 100 mL of dye solution and stirred for 30 minutes before illumination then 5mL aliquots were obtained every six minutes for 1 hour. UV-Vis analysis of the aliquots revealed reaction rates for each synthesized catalyst using pseudo-first order kinetics. Interestingly, catalysts with larger particle sizes showed faster reaction rates.

Keywords: Photocatalysis; silver orthophosphate; particle size; dye degradation; visible light

SEE-I-008

Weaving the Culture of Digital Tourism in the Summer Capital of the Philippines

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Abstract: As time passes and culture is passed on to different generations, the elements of tourism diverse. With the prevalence of technology in our country, its citizens will have a better grasp of what tourism actually is. This paper tackled and delved deeper on how beneficially technology can affect and be the bridge to connect the gap between tourism and culture. In the modern era, technology is ever-evolving, and it can be a great enhancement or tool for boosting tourism especially through digital tourism. Whilst its social costs, both globalization and modernization cannot be ignored; digital tourism can transform the imagery and identity of a locality. The scholars used the method of semi-structured interviewing and analyzed their accumulated data through thematization for this phenomenological study. The researchers have identified the elements of Digital Tourism mainly focused on programs, technology and media. Meanwhile, the researchers also determined the implications of Digital Tourism to the locals, the tourists and the government. The following influences of Digital Tourism are also mentioned by the researchers namely: culture and the development of the city. As a conclusion, the scholars have found out that Digital Tourism is firmly applicable to the City of Baguio and is adhered by tourists, locals and the government.

Keywords: Tourism; Technology; Culture; Sustainability; Globalization

SEE-I-009

Feasibility of Cacao variety authentication based on cotyledon color and biochemical parameters

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Abstract: The distinction between bulk cacao and fine flavor cacao or Philippine Criollo leads to a significant difference in pricing which affects producers and consumers of the crop. Criollo, Forastero, and Trinitario are varieties of cacao recognized internationally. Criollo is considered as the fine flavor variety and is priced higher compared to Forastero and Trinitario. The three varieties have been well studied in the international literature and would have phenotypic and biochemical characteristics that would distinguish one from the other. The Philippines cultivates nine certified varieties of cacao including UF18, BR25, and PBC123. How these match up to the international varieties has not been studied. Farmers have some local practice of identifying criollo, however, they are incorrect based on the results of this study. A project to characterize cacao from different sites in the country based on morphology, biochemistry, and genetics is underway. In order to proceed with the bigger project, this study presents the general biochemical profile of Luzon and Mindanao as well as evaluation of farmer knowledge on cacao varieties. Samples from Metro Manila, Batangas, Quezon, Romblon, South Cotabato, and Davao were analyzed using the cacao bean test and biochemical parameters. The cacao bean test is based on the cotyledon color while caffeine, theobromine, and chlorogenic acid were measured using UV Vis spectrophotometry. Included in this study is the optimized methodology for amplifying trnH-psbA and ITS which are used in determining cacao variety based on genetics. Farmers were correct in identifying non-criollo cacao based on plant and external pod appearance. Batangas and Quezon has lower caffeine and higher theobromine and chlorogenic acid as compared to other provinces in Luzon and Mindanao. The cotyledon color and biochemical concentrations may be correlated with the genetic and aromatic profiles in future studies.

Keywords: *Theobroma cacao,* bean test, cotyledon color, criollo

SEE-I-010

Optimization of Simple and Rapid DNA extraction procedure for *Tridacna Squamosa*

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Abstract: There are a lot of methods for isolation of genomic DNA, but some are time-consuming, expensive and some requires higher amount of tissue. This study optimized a one-tube Kapa Express protocol for DNA extraction of *Tridacna Squamosa* and used a field-friendly mini PCR machine for DNA amplification. This study compared the results with previously published CTAB and chelex extraction method for DNA extraction of Giant clam samples. The optimized KAPA express protocol is better due to: (1) higher DNA yield; (2) lesser time of extraction (3) environmental friendly where less tubes and waste products involved. The optimized method in this study presents a simple, rapid, economical and field friendly method for DNA isolation of *Tridacna Squamosa.*

Keywords: One-Tube Extraction; Tridacna; Giant Clams; Philippines; DNA Extraction

SEE-I-011

Examining information management practices in disaster preparedness in the Philippines

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Abstract: The need to improve local capacities in the Philippines is crucial in mitigating and responding to future disaster events. Despite being one the most disaster-prone countries in the world, national protocols remain inefficient, marred by corruption and poor inter-agency coordination. In addition, the current top-down and reactive practices have proven to be inadequate in responding to the needs of various stakeholders. In our study, we examined these disaster preparation practices through a qualitative-descriptive research design and by using disaster governance (DG) as our framework. Using this approach, we focused on the disaster preparedness practices of selected barangays (Iligan and Legazpi cities) and their partner organizations. We also examined their information needs and the current ICT tools in disaster preparedness. Initial results of our study point to the difficulties in the use of information highlighting serious gaps in capacity, infrastructure as well as the efficacy of the current ICT tools.

Keywords: Disaster governance, climate change adaptation, disaster preparedness and information management

SEE-I-012

Indoor Air Quality Investigation and Analysis of a Multi-Purpose Building in Manila

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Abstract: Indoor air quality (IAQ) deals with the determination and management of the cleanliness and health and comfort characteristics of the air in human occupied enclosed spaces. In this descriptive-analytical study, IAQ parameters (CO2, PM 2.5, PM 10, DBT, RH) in a multi-purpose building in Manila were characterized. There were 7 chosen areas, each having different functions – cafeteria, clinic, 3 offices, and 2 reception areas. Two sets of measurements were done: one for the dry season during the month of May 2018 and another one for the wet season from end of June 2018 to start of July 2018.The IAQ instruments utilized were AZ Instrument 77597 and IOM Sampler. In addition, a survey was performed on the occupants to gain subjective information on the said areas. After the investigation process, the data was compared to the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) standards and analyzed statistically. The results show that in the test building, some areas have exceeded CO2, PM 2.5, DBT, and RH levels set by ASHRAE. In the statistical tests, significant correlations were obtained between indoor CO2 and number of occupants, indoor and outdoor CO2, and PM 2.5 and PM 10. Comparisons of IAQ characteristics were also done between wet versus dry season and start-of-workday versus end-of-workday.

Key Words: Indoor Air Quality (IAQ); CO2 level; Particulate Matter (PM); Air Conditioning

SEE-I-013

Design of Modular Casing for Flight Controller and Companion Computer Integration for a Quadcopter UAV

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Abstract: This paper describes a new modular casing design for a flight controller and companion computer integration on a quadcopter. The absence of protection for a flight controller combined with a companion computer in UAV applications runs the risks of low performance and safety concern of a UAV. In this study, the researchers designed and simulated four different casing designs with the goal of producing the least amount of drag and payload when mounted on the UAV while still sufficiently protecting its internal components. CFD analysis predicted the aerodynamic performance of the four designs. One-way Analysis of Variance (ANOVA) showed that there was no significance on the differences of the four designs in terms of drag. This allowed weighing in other factors in considering the final design through a five-criterion Likert scale. Scores revealed that the hybrid design is the most practical among the four. 3-D printing of the casing with Acrylonitrile Butadiene Styrene (ABS) plastic as the main material was also proposed.

Key Words: UAV; electronic enclosure; aerodynamics; CFD

SEE-I-014

Modelling Manila Rail Transit Reliability With Dynamic Bayesian Networks

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Abstract: Reliability has been an important issue in modern transportation systems, such as the Manila Rail Transit (MRT) Line 3. In the aim of modelling the reliability of the MRT 3 (TATRA RH8D5M), ten of its components were modeled after a renewable and repairable indices based on exponential reliability models. The relationship of future and past component reliability were then represented as a vector autoregressive (VAR) process with a dynamic Bayesian network without the need of a fault tree analysis or reliability block design. To gather further knowledge of the correlation between components, an incremental association structural learning algorithm was applied between the reliabilities of each component, where the association between reliabilities of components learned from this algorithm is represented with an undirected graph together with the represented VAR process in the dynamic Bayesian network. To further the possible inference, a maximum likelihood estimation parameter learning algorithm was used to derive the conditional probabilities of the reliabilities of the component and the overall system. Resulting component reliabilities demonstrates varying reliabilities based on component age, where concepts based on life mortality may apply. This is present on component reliabilities such the bogie of the TATRA RH8D5M, where it can be expected to have high number of failures of components aged less than 50, and aged more than 200. The resulting structure from the dynamic Bayesian network representation of the VAR process and the incremental learning demonstrates expected relationships among component reliabilities, but the strength of these relationships which is derived from the MLE-based parameter learning presented strong cases of failures due to failures of other expected components.

Keywords: Reliability Engineering; Bayesian Networks; Vector Autoregressive

SEE-I-015

Carbon Monoxide Adsorption on Os (0001) Surface for Fischer-Tropsch Synthesis

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Abstract: Crude oil is the most utilized source of energy worldwide today. Gasoline, diesel, and jet fuels are products derived from crude oil which came from fossil fuel. These products were used both in household and industry. As the demand for these products increases, a shortage is expected because of the limited source of fossil fuels. Fischer -Tropsch (FT) synthesis provides a possible solution to resolve this problem. The most commonly used catalysts in FT synthesis are transition metals, which involves iron, cobalt, and ruthenium. On the other hand, osmium belongs to the group 8 elements together with iron and ruthenium and a hexagonal close-packed crystal structure like cobalt and ruthenium with a greater lattice parameter. This study focused on the initiation stage of the FT synthesis where a carbon monoxide (CO) molecule is adsorbed on the Os (0001) surface. This study determined the adsorption energy of CO on osmium (Os) (0001) slab (i.e., CO/Os(0001) system) and the dissociation energy of oxygen (O), with their corresponding density of states (DOS) and charge density difference profiles with the use of Density Functional Theory (DFT) implemented by VASP. The density of states for Os showed symmetry between the spin up and the spin down states, indicating that Os(0001) is non-magnetic. Charge density difference provides a graphical representation of electron distribution and is supported by a Bader charge analysis. Presence of states on the Fermi level was also observed, indicating that Os(0001) is a non -magnetic metal. CO adsorbed on the top site of Os (0001) surface, with an adsorption energy of -2.04 eV.

Keywords: Carbon monoxide adsorption; Fischer-Tropsch Synthesis; Osmium

SEE-I-016

Effects of Splicing, Load Variations, and Distance Variation to G3 PLC Transmission

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Abstract: Power line communications is a technology that makes use of electrical power lines as a channel for data transmission. Different external factors can affect the data transmission in power line communications. In this research, PLC transmission is subjected to several scenarios such as splicing, loading and distance variations. The TI C2000 PLC modem is used in the test. The test was conducted in one of the computer laboratory room in DLSU, The G3 PLC standand is utilized and the effects of different scenarios to the PLC transmission are observed using the signal-to-noise ratio (SNR). The SNR measured for the splicing scenario varied from 6 dB to 12 dB. While more splices in the path of transmission showed smaller SNR value, it is attributed to the distance between the modems rather than the splices. For the loads scenario, an SNR of 3dB to 6dB is observed for both the ROBO and BPSK mode when a computer is connected as load. In the QPSK and 8PSK modulation, transmission failed when two computers are connected to the line. For the distance scenario, only the ROBO is able to transmit successfully with an SNR of 6dB when the load is very near at1.35m away from the transmitter while a 0dB is observed when the load is moved very near to the receiver. For the other modulation schemes, transmission failed when the distance of the load from the receiver is at least 13 meters. Based on the measurements, it is concluded that splicing does not affect transmission. For the loads, it is the type of load rather than the power rating of the device connected along the path of PLC transmission that affects the transmission.

For the distance, smaller SNR is produced for loads connected near the receiver.

Keywords: PLC; G3; C2000 PLC modem, Indoor PLC

SEE-I-017

The Effect of Temperature on Hydrogen Adsorption on a Single-Walled Carbon Nanotube: An *Ab Initio* Investigation

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Abstract: Carbon nanotubes have been recognized as good nanomaterials for potential applications as a material for hydrogen (H2) storage. As such, several avenues for further studies on large-scale utilization of hydrogen for clean and sustainable renewable energy source has been desirable. One of such avenues is the use of computational techniques based on density functional theory (DFT) which enable the prediction of the behavior and properties of materials, thereby aiding researchers in experimental designs. In this study, the effect of temperature on adsorption of a single H2 molecule on a single-walled (N = 6 and M = 6) carbon nanotube (CNT) (8.14 Å) was investigated through *ab initio* molecular dynamics (AIMD) simulation using Dmol3. The generalized gradient approximation (GGA) Perdew-Wang-91 (PW91) was used with the Ortmann, Bechstedt and Schmidt (OBS) method of DFT-D correction. The massive Generalized Gaussian Moment (GGM) constant amount, volume, and temperature (NVT) thermostat was used for temperature control at T = 100 K, 150 K, 200 K, 250 K, 300 K, and 350 K. Dynamics calculations were carried out at a time step of 0.15 x 10-15 s with 75 increments for a total simulation time of 1.125 x 10-13 s. Results show that a linear relationship exists between the jerk of the H2 molecule during adsorption into the CNT cavity and the reciprocal of the absolute temperature of adsorption from 150 K to 350 K (R2 = 0.9915). Except for the simulation at 100 K, adsorption was evidenced by the migration of the H2 molecule towards the CNT cavity. Future work may focus on the effect of varying operating pressures, H2 to CNT ratio, and the capability of various porous carbon materials on H2 adsorption.

Keywords: *ab initio*; adsorption; carbon nanotubes; hydrogen storage; molecular dynamics simulation; temperature effects

SEE-I-018

Excitation-Emission Fluorescence Measurements of Dissolved Organic Matter in Pasig River, Metro Manila, Philippines

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Abstract: Pasig river is an important river in Metro Manila, Philippines, since it provides livelihood and transports to its residents, and connects Laguna bay and Manila bay. Using fluorescence spectroscopy with

ultraviolet-visible (UV-Vis) wavelength range using a scanning monochromator (300-700 nm) and high power Xenon light source (180-2000nm), the characteristics of dissolved organic matter (DOM) in Pasig River were assessed. There are eight sampling sites based on the Pasig River Ferry System. Excitation-Emission Fluorescence were graphed to characterized DOM composition and fluorescence indices such as fluorescence index and biological index. Fluorescence index of mean 1.28 showed that all river water samples are terrestrial in origins. Other parameters such as temperature, pH, and dissolved oxygen were also measured.

Keywords: Fluorescence Spectroscopy; Excitation-Emission matrix; Dissolved Organic Matter; Pasig River

SEE-I-019

Green Synthesis and Characterization of Magnetic Pectin-Iron Oxide Nanocomposite (MPION) and its Dye Adsorption

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Abstract: Green synthesized magnetic pectin-iron oxide nanocomposites (MPION) was used as an adsorption agent for the removal of common toxic dyes found in waste water from textile industries, namely Methyl violet, and Methylene blue. Pectin, a polysaccharide found in fruits, was extracted from *Citrus maxima* (Pomelo) peels and was utilized to coat the green synthesized iron oxide nanoparticles (ION). The characterization of the MPION was carried out by Fourier transform infrared spectroscopy. The nanocomposite was placed in the prepared dye solutions. The absorbance of the dyes was taken using UV-Vis Spectrophotometry. The initial absorbance along with the absorbance after the addition and removal of MPION was measured and recorded for the computation of concentrations of the dye solutions. It was found that the adsorptive capacity of (MPION) was significantly greater than the ION for Methyl violet and Methylene blue.

Keywords: magnetic iron oxide; nanocomposite; pectin; dye remediation

SEE-II-020

Seismic Fragility Assessment of Non-fixed Hospital Equipment

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Abstract: Hospitals should be able to resume operations after a large seismic event in order to address possible health issues after the event. Unfortunately full operational capacity may not be possible if the structural integrity of the hospital is compromised or non-structural elements including hospital equipment are damaged due to seismic ground motion. The dysfunction of damaged hospital equipment may impede medical operations for post-seismic activities. In light of this, the authors assessed the overturning and sliding responses of different hospital equipment. Hospital equipment were classified into three types based on wheel states: un-wheeled, locked wheeled, and unlocked wheeled. Nine strong-motion earthquakes from the PEER Ground Motion Database were used as input ground motion. Four limit states were considered: for sliding (in displacement), LS1 = 10 cm; LS2 = 25 cm and LS3 = 40 cm and for overturning or toppling. These data were used to construct individual sliding and overturning fragility curves for each

equipment. Simulation for collision, sliding and rocking of the equipment within the patient, ward and operating rooms were also conducted using the Surigao 2017 acceleration vs time earthquake data. The results show the equipment with the least b/h ratios has a high probability to overturn except the wheeled equipment that have very low friction. Unlocked wheeled equipment are hazards due to an increased probability of collision with other equipment.

Keywords: hospitals; seismic event, hospital equipment; fragility curve

SEE-II-021

Deletion of the deoxyhypusine hydroxylase gene in yeast resulted in slow cellular growth and inactivation of OXPHOS

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Abstract: The eukaryotic initiation factor 5A (eIF5A) is the only know protein to undergo hypusination. Much of the studies have been devoted to decipher the role of hypusination, but little is known about the precise role of another eIF5A post-translational modification which is acetylation. Deletion of the the deoxyhypusine hydroxylase, one of the enzymes responsible in hypusination, resulted in eIF5A which is heavily acetylated. Furthermore, this acetylation of eIF5A resulted in impaired cellular growth, decreased respiration and increased ethanol production. These phenotypes were reversed when the site for acetylation was blocked in the K49R mutant implying that eIF5A acetylation plays a role in the cell's metabolic shift from OXPHOS to glycolysis.

Keywords: cellular respiration; acetylation; cell metabolism; ethanol production

SEE-II-022

Ethylene Adsorption on Platinum (111) Catalyst - A DFT-based Investigation

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Abstract: The ethylene decomposition catalyst plays an important role for the preservation of fruits and vegetables during long transportation and storage. Hence, ethylene decomposition to smaller molecules on different catalyst has been studied. However, the mechanism on how ethylene is broken down to its smaller byproducts (e.g. vinyl and ethylidyne) in relation with the intrinsic properties of the catalyst is not clear. Identifying the fundamental principles of ethylene interaction with the catalyst can guide researches on designing efficient and cheap catalysts for its decomposition. In this study, we have investigated the decomposition of ethylene to vinyl and ethylidyne on platinum surface, in particular, Pt (111), with the aid of the density functional theory (DFT)-based ab initio simulations. Different adsorption

sites were considered: the top, bridge, fcc hollow and hcp hollow sites. On Pt (111), the length of carbon-to-carbon bond of ethylene on bridge site is elongated as compared with that of ethylene on top site. In addition, the binding energy on bridge site is larger than that on top site, however, the difference is very small. It implies that ethylene can also decompose to vinyl, and eventually to ethylidyne, on the top site. This supports previous experimental data wherein ethylene was detected to adsorbed on the top site at some temperature range and environmental set-up with oxygen. From the calculated adsorption energies, it was found that vinyl and ethylidyne are also stable on Pt (111) suggesting a thermodynamically easy decomposition. This is due to the effective hybridization of Pt's d-orbitals with that of ethylene's p-orbitals. From these results, we can say that platinum (111) is a potential catalyst for ethylene decomposition which can be used for the preservation of fruits and vegetables.

Keywords: catalysis; ethylene decomposition; vinyl; ethylidyne; platinum

SEE-II-023

First principle and molecular dynamics simulations on water adsorption on three-chained polyacrylamide

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Abstract: With the easy cultivation of microalgae for small land area, its conversion to biofuel has been intensively being researched. One major bottleneck is lowering its moisture content to 10% using low energy and with good-quality outcome. Forward osmosis system combined with polyacrylamide (PAM) to maintain the salt concentration on the draw solution is proposed in this study. Water sorption on 3-crosslinked circular polyacrylamide membrane was investigated using ab initio principles, molecular dynamics and monte carlo calculations. The PAM structure was structurally optimized using density functional theory, and then equilibrated at room temperature and 1 atm pressure for 1 ns using molecular dynamics simulation. Monte Carlo simulations at room temperature with 2,500,000 steps and geometry optimization per step were performed to identify the adsorption sites for 25, 50, 75, 100, 125, and 150 water molecules by calculating their adsorption energies under the Dreiding Forcefield Model. A mathematical model was fitted to identify the relationship of adsorption energies with the number of water molecules that can be absorbed. Results showed this material can potentially adsorbed 1082 kg - 2345 kg of water per cubic meter of material when translated from calculated amount of water molecules that was adsorbed per unit cell volume. This study serves as a foundation for exploration of the new material circular polyacrylamide membrane that can facilitate microalgae drying to produce biomass and biofuel.

Keywords: Microalgae; Density Functional Theory; Molecular Dynamics

SEE-II-024

Comparison on the Water Balance With and Without the Application of LID in an Urban Catchment in San Juan City, Philippines using Stormwater Management Model (SWMM)

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Abstract: Urbanization has severe adverse effects to the watershed. It disrupts the natural hydrology in the form of impermeable surfaces resulting to increase in stormwater runoff volume, rate and velocity as well as diffuse pollution.

Unmanaged stormwater in this form typically brings the problem of flooding and reduced groundwater recharge. Low Impact Development (LID) is a nature-based solution approach implemented to reduce the adverse impacts of urbanization by mimicking the natural hydrology of site lost due to urbanization. LID has been extensively applied in most developed countries; however, due to the site-sensitive nature of LIDs, further research must be done to find compatibility in the Philippine setting. This research aims to investigate the applicability of LID in an urban landuse in the Philippines using local hydrologic and topographic data. Thirty scenarios were modelled using the Storm Water Management Model (SWMM) to compare the water balance at the site with and without LID application. The results showed a significant increase in infiltration when LID technology was considered. The water balance exhibited a similar trend in all scenarios: increasing in infiltration when rainfall intensity is decreased; and performing better in soil with higher infiltration. Infiltration in a scenario with Infiltration-type LIDs designed with 90th percentile rainfall, captured at least approximately twice more with LID than without LID. When designed to capture 60th percentile rainfall, almost all the rainfall could be infiltrated. The results of this research could be useful in designing pilot LID projects in the Philippines.

Keywords: infiltration; Low Impact Development; modelling; stormwater runoff; water balance

SEE-II-025

Assessing the Effectiveness of Fly Ash in Mitigating the Alkali-Silica Reaction in Concrete with Soda Lime Glass

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Abstract: This study utilizes soda lime glass as a component in concrete mixture replacing coarse aggregates at varying percentages. The end view is to reduce the production cost of concrete and its negative effects on the environment at the same time addressing the disposal problem of solid waste. However, one drawback of the use of soda-lime glass in the concrete mix is its ability to produce Alkali-Silica Reaction (ASR). Class-F fly ash was added in the mix as supplementary cementitious material replacing 30% of cement by volume. The potential alkali-silica reactivity (ASR) of soda-lime glass was determined and the effectiveness of fly ash as a mitigating agent of ASR was evaluated. Test results showed that the replacement of soda-lime glass to coarse aggregates produced an increase in compressive strength up to 30% replacement. An empirical model was formulated to predict the compressive strength at percentage substitution of soda-lime glass to coarse aggregates. From flexural strength test, results showed that there is a minimal reduction in the flexural strength as the percentage replacement of soda-lime glass was increased but the reduction can be considered as insignificant. Beam specimens with soda-lime glass experienced a reduction in ductility as manifested by the stress-strain behavior. With the use of 30% class F fly-ash as supplementary cementitious material, the utilization of glass can be maximized up to 20% substitution for coarse aggregate without deleterious expansion. It can be concluded that waste soda-lime glass is a viable replacement for coarse aggregate in concrete production up to 20% substitution with class F fly-ash in moderate level as supplementary cementitious materials without compromising the structural integrity and quality of the finished concrete products.

Keywords: alkali-silica reaction; compressive strength; flexural strength

SEE-II-026

VEMON: Vision-based Vehicle Counter for Traffic Monitoring

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Abstract: VEMON: Vision-based Vehicle Counter for Traffic Monitoring is a traffic monitoring system that counts vehicles according to classification, estimates vehicular speed, and estimates ambient air quality using a traffic camera video stream or file as input. Pre-defined vehicle classifications used are the following: sedan, SUV, truck, van, and jeep. The system vehicular classifications and counts were shown to agree with human annotations through correlational analysis.

Keywords: Traffic Monitoring, Computer Vision, Image Processing

SEE-II-027

Causal Relationship between Electricity Intensity and the Service Sector Value: The Philippine Case

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Abstract: This paper investigates the causal relationship between over-all electricity intensity and the largest source of domestic production in the Philippines; i.e. services production. Electricity is a vital input into production of services. Electricity intensity is defined as a ratio of electricity consumption with total domestic production with consideration of any price changes. The main finding in this paper is that electricity intensity "Granger cause" production in the Philippine service sector. The Granger testing methodology checks either for any existing directionality in a causal relationship or no relationship exists at all. This finding has an important bearing on focusing policy interventions and strategies related to electricity demand management. These policies and strategies should be applied so as not to compromise the valuable contribution of services into the Philippine gross domestic product.

Keywords: Electricity intensity; Service sector; Value-added

SEE-II-028

Initial investigations on the surface properties of *Hibiscus tiliaceus* Linn.

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Abstract: There is a growing interest in biomimetic studies that explore nature-inspired principles and strategies in the design and development of innovative materials and technologies. Hence, it is important to investigate the potential of plants as templates for a wide spectrum of biomimetic applications. In this study, leaves of *Hibiscus tiliaceus* Linn., of the family Malvaceae, and popularly known as malobago (Tagalog), were investigated for their wettability (and oleophilic properties using the following parameters: (1) microstructures present in the epidermal surfaces of the leaves (SEM), (2) wettability (tensiometer; contact angle, □), and (3) oil sorption capacity (OSC). The SEM images of the abaxial leaf surface of *H. tiliaceus*

showed a dense network of overlapping and intertwining non-glandular trichomes, consisting of 8-ray stellates. The new proposed superhydrophobic contact angle is 145°, as determined by the measured wetting and adhesion interactions between water and a variety of surfaces (Law, 2014). The mean contact angle measured for *H. tiliaceus* was =142.84°±3.81°. It is the complex microstructures on the leaf surface that are hypothesized to cause this nearly superhydrophobic property. For the oil sorption capacity, the mean value obtained for the plant using motor oil was 176.93±7.93%. This is likely due to the dense and complex network of overlapping stellates observed in the plant leaf surface. Previous studies showed that hierarchically structured surfaces are associated with high sorption capacities (Barthlott et al., 2016). The information reported in this work will be helpful in exploring the biomimetic potential of *H. tiliaceus*, especially its usefulness in bioremediation (e.g. oil spill clean-ups, self-cleaning applications).

Keywords: *Hibiscus tiliaceus* Linn., trichomes, wettability, sorption, biomimetics

SEE-II-029

Uncovering short- and long-run relationships between Philippine GDP, population and carbon emissions using Autoregressive Distributed Lag and Cointegration Analysis

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Abstract: The most recent scientific assessments confirm that the warming of the climate system is due to human activities such as burning of fossil fuels and land use change. All over the world, various studies are conducted to understand the strong connection between economic activity, population growth and carbon emissions. In recent years, plenty of methodologies have been adopted for this purpose, including decomposition analysis, and panel-based methods. This paper utilizes the methodology Autoregressive Distributed Lag (ARDL) and Cointegration Analysis to uncover potential long term, short and delayed effects of economic growth and population growth to CO2 emissions in the Philippines. This analysis used data from 1960 to 2014 extracted form the World Bank. The analysis showed that emissions from the Philippines have short and long run relationships with its previous levels, while GDP only contributed slightly in this test. The key learning from this research is that many data is needed to fully conduct this cointegration and ARDL analysis. XLSTAT software is very usefully in this analysis to further understand the cointegration analysis. A learning from this study is to test for cointegration first before conducting other related analysis because the cointegration test can test the reliability of the data.

Keywords: Autoregressive Distributed Lag (ARDL); Cointegration; Carbon Emissions; Gross Domestic Product (GDP); Total Population (TP).

SEE-II-030

Technology and Automation as Sources of 21st-Century Productivity: The Economics of Slow Internet Connectivity in the Philippines

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Abstract: There has been little evidence that an increase in technology has led to productivity. The study aims to analyze technological progress and automation as a source of increasing productivity and internal and external factors affecting connectivity in the Philippines. The theoretical framework proves that productivity is indeed increased with an increase in technology level, i.e. connectivity

as seen in the behavior of the slopes. A technology level decrease, on the other hand, decreases productivity. The connectivity problem in the Philippines leads to problems in the country which is caused by fundamental barriers to growth such as the high sunk costs incurred by telecommunication infrastructure. Despite this, the Philippines still continues to produce high output. The study recommends strategies to address the connectivity rigidities such as common infrastructures, increase bandwidth, and develop of new technologies for connectivity.

Keywords: Productivity; technology; automation; connectivity; Philippines

SEE-II-031

Development of a Multi - Split Solar-Assisted Cooling System for Residential Application

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Abstract: The Philippines is one of the countries in the world with generally high electricity rate and consumption. In this regard, engineers continuously develop new technologies to lessen electricity consumption and they are more inclined to renewable energy sources. A lot of establishments and residences are likely to use air conditioning units since it can be very hot and humid in the country. The aim of this study was to design a solar – assisted air – conditioning system and compare it with that of a conventional one in terms of power consumption and performance. The multi-split system was also tested in terms of its effectiveness in cooling the three rooms. Both systems were operated continuously for eight hours which is the usual average operating time of air – conditioning units in a household setting. Results showed that the conventional air – conditioning systems used in the three rooms accumulated an average total power consumption of 33.53 kW-h for 8 hours while the use of the solar – assisted, multi-split system which was tested for 5 straight days accumulated an average total power consumption of 27.19 kW-h for 8 hours. Thus, the solar – assisted, multi - split system produced better results with 18.91% savings in power consumption while producing and maintaining a cool temperature. The coefficient of performance (COP) of the solar – assisted system was 2.84 compared to that of the conventional system which was 1.57. Further studies to improve the performance of the system is recommended.

SEE-II-032

Synthesis of pervious fly ash based geopolymer concrete

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Abstract: Thermal power plants in the Philippines generate every year millions of tons of coal fly ash and the disposal of such waste has been a burden to the generator. Therefore, the utilization of coal fly ash for various applications has gained the interest of the researchers. In this study, coal fly ash based geopolymer was explored as an alternative to Portland cement to produce pervious concrete. Geopolymer is an inorganic polymer with three-dimensional structure which is formed from reacting silica-rich and alumina-rich materials in alkaline liquid. On the other hand, pervious concrete is becoming popular for Low Impact Development (LID) of infrastructure such as urban pavement which can be effective in treating contaminated water by removing the undesirable pollutants. This work explored the use of full factorial design of experiment for systematic mix proportioning of the raw materials to

synthesize pervious coal fly ash based geopolymer concrete. Experimental factors such as fly ash/coarse aggregate (FA/CA) ratio, coarse aggregate (CA) size, alkaline liquid/fly ash (AL/FA) ratio, and sodium hydroxide (NaOH) molarity were employed. Compressive strength was performed and considered as the response variable of the statistic design of experiment.

Keywords: geopolymer; pervious concrete; fly ash; compressive strength

| THEORETICAL, PHILOSOPHICAL AND HISTORICAL STUDIES

TPHS-I-001

Dogs, Rabies and the Filipinos: The Anti-Rabies Campaign in the Philippines, 1910-1934

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Abstract: Rabies was a major public health and veterinary problem in the Philippines ever since the disease was proven to exist in the country in 1910. With the recognition of the existence of canine rabies in the Philippines during the American period, the Philippine Health Service and the Bureau of Science classified this zoonotic disease as one of the most dangerous diseases in the country. Likewise, the Bureau of Agriculture also included rabies in its list of the most communicable animal contagions in the Philippines. Since 1910, health authorities received many reports of human and dog rabies cases. As a result, the colonial government had vigorously campaigned against the spread of rabies throughout the country. To control the spread of rabies between dogs to humans and dogs to dogs, different agencies of the colonial government enacted and enforced sanitary measures. These policies involved a gamut of human, environmental and veterinary medical policies that aim to protect the health and safety of humans, canine animals, and the environment as well. In this paper, I shall investigate the reasons behind the increasing number of human rabies cases in the Philippines during the American period (1910-1934). I will also discuss how the One Health Concept or the interaction of human medicine, veterinary medicine and the environment was utilized by the American colonial government in the anti-rabies campaign in the Philippines. Moreover, I shall also examine the challenges faced by the anti-rabies campaign in the Philippines during the American period.

Keywords: Negri Bodies; Rabies; Philippine Health Service; Bureau of Science; Dogs; Hydrophobia

TPHS-I-002

Ang Ikalawang Digmaang Pandaigdig sa Lente ng mga Pelikulang Hapones: Ang Pacifist Anime Bilang Gunita at Daluyan ng Kultura, Kalinangan, at Kasaysayan

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Abstract: Nagsisilbing mayamang-batis kultural ang mga pelikula upang masuri ang kasaysayan at konteksto ng kinalalagyan ng lipunang lumikha nito. Bilang midyum ng alaala, pumapaloob ang pelikula sa konsepto ng “collective memory” kung saan maaring maging tagapamagitan ito ng identidad at pangkasaysayan kaalaman ayon sa pag-unawa ng kultural na representasyon nito. Batay dito, layunin ng papel ang suriin ang naging perspektiba ng mga Hapones sa Ikalawang Digmaang Pandaigidig (World War II) batay sa tatlong mga piling pelikulang historikal na pinamagatang, “The Grave of the Fireflies” (1988), “The Wind Rises” (2013), at “In This Corner of the World” (2016). Sa tulong ng mga nasabing pelikula, inaasahang matutunton ang mga naging karanasan at kasaysayan ng mga Hapones sa Ikalawang Digmaan Pandaigdig at kasama na rito ang naging pagkilala sa identidad sa bansang Hapon matapos ang digmaan (Postwar Japan). Mula sa pag-aaral nagkaroon ng pagpopook sa diskurso ng alaala bilang kasaysayan at ang mga karagdagang implikasyon nito. Itinatawid din mula rito ang pagsulong ng progresibong kamalayang nakatuon sa pagpupunyagi ng mga Hapon para sa kapayapaan sa kabila ng dagok ng karahasan dulot ng digmaan. Sa kabila nito, inimumungkahi ng papel bagama’t ang mga pelikula ay nagsilbing daluyan ng pilosopiyang pangkapayapaan, hindi ito itinuturing angkop na pamamaraan sa pagpataw nito ng kaalamang historikal dahil masalimuot ang paggamit ng

kolektibong alaala sa paglahad ng kasaysayan.

Keywords: Ikalawang Digmaang Pandaigdig; Pelikulang Hapones; Pacifism; Anime

TPHS-I-003

On the Zero Ring Index of Multipartite Graphs

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Abstract This study focuses on a labeling of the vertices of a graph *G.* A *zero ring* is a ring denoted by R^0 where the product of any two distinct elements is equal to 0, the additive identity of the ring. A A *zero ring labeling* of G is an assignment *f* of elements of R^0 to the vertices of *G* such that $f(x) + f(y) \neq 0$ whenever *x, y* are adjacent in *G.* It is known that every graph has a zero ring labeling, so an interesting problem to consider is to determine the smallest positive integer *x(G)* such that there exists a zero ring R^0 of order *ξ(G)* for which *G* admits a zero ring labeling. This graph parameter is called the *zero ring index* of the graph *G*. It is known that many of the common classes of graphs such as paths, fans, wheels, complete bipartite graphs, and trees, have zero ring indices which are equal to their order, which is the least possible value for the zero ring index of a graph. In this paper, we discuss a characterization for graphs with zero ring indices equal to their orders. Moreover, we study the zero ring index of the class of multi-partite graphs.

Keywords: zero ring labeling, zero ring index, multi-partite graph, zero-sum pair, matching number

TPHS-I-004

Ang Pag-ibig ni/kay Christopher Borela: Pakikipanayam Tungkol sa Pilosopiya at Estetika ng Kaniyang mga Areglo sa Korong Pilipino

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Abstrak: Sa mga nakalipas na dekada, isa ang Korong Pilipino sa mga nagbibigay karangalan at pagkilala sa bansa. Noong 2012, labing-isang koro sa Pilipinas ang naisama sa listahan ng Interkultur sa 100 nangungunang koro sa buong mundo. Isa ang University of the Philippines Madrigal Singers sa kinikilalang Koro sa buong mundo. Dalawang ulit (1997 at 2007) nilang dinomina ang European Grand Prix for Choral Singing, ang pinakaprestihiyosong pandaigdigang patimpalak sa koro. Sa kasaysayan ng Grand Prix, limang koro lamang ang nagawang masungkit ng dalawang beses ang kampeonato. Bahagi ng dalawang karangalang ito ang kompositor at taga-areglong si Christopher Borela. Nagsimula ang kaniyang karera bilang miyembro ng Manila Children's Choir na nagpatuloy hanggang kolehiyo nang anyayahan siya ni National Artist for Music Andrea Veneracion na maging bahagi ng Madrigal Singers. Bukod sa pagkanta, nakilala rin si Borela dahil sa kaniyang mga areglo partikular na ang mga awiting pag-ibig tulad ng *How Did You Know*, *When You Say Nothing At All*, at *Ikaw*. Sa ganitog diwa, layon ng papel na ito na mas makilala si Borela sa pamamagitan ng isang panayam. Naging tuon ng pag-uusap ang pagtalakay niya sa kaniyang pilosopiya, estetika, at proseso sa paglikha ng mga areglo. Mahahati ang papel sa dalawang seksyon: (1) pagpapakilala kay Borela bilang bahagi ng Madringal Singers, kompositor, at taga-areglo (2) paglalahad sa transkripsyon ng panayam kay Borela.

Mga Susing Salita: Christopher Borela; Madrigal Singers; Korong Pilipino; Areglo

TPHS-I-005

Ang Pamanang Kasaysayan: Isang Pag-aaral sa Ilang Antigong Bahay sa Malolos

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Abstrak: Isa ang kasaysayan at kultura sa maipagmamalaking yaman ng Lungsod ng Malolos sa Bulacan. Matatagpuan dito ang ilan sa mga antigong tahanan na sinubok na ng panahon. Gayon man, kalakip ng pagkakaroon ng mga makasaysayang istruktura tulad ng bahay, ang hamong mapanatili at mapangalagaan ang mga ito. Sa ganitong diwa, layunin ng pag-aaral na makapag-ambag sa preserbasyon ng mga itinatanging yaman ng mga taga-Malolos sa pamamagitan ng pagbuo ng isang pag-aaral uko dito. Hindi lamang ito nakatuon sa kahalagahang pangkasaysayan ng mismong istruktura ng mga antigong bahay, kung hindi maging sa mga kuwento at kagamitang nakapaloob dito. Nilimita lamang ng mga mananaliksik sa tatlo ang teksto ng pananaliksik at pinili ang mga bahay na kinikilala ng lokal na pamahalaan bilang pamana sa bayan, may higit (50) taon nang nakatayo, at may historikal na ambag sa lipunan. Ito ay ang: Tahanan ng mga Tanjosoy na may edad 206 na taon; Tahanan ng mga Bautista na may edad 141 na taon; at Tahanan ni Dr. Luis Santos na may edad 85 na taon. Isinagawa ang pag-aaral sa pamamagitan ng pakikipanayam sa mga tagapangasiwa at/o may-ari ng mga bahay, direktor ng Pambansang Komisyon ng Kultura at mga Sining (NCCA)-Malolos, arkitekto ng Lungsod ng Malolos, at ilang mga residente. Nangalap din ng mahahalagang dokumento na may kaugnayan sa tatlong bahay na susuriin. Ginamit bilang gabay ng pag-aaral ang Critical Theory of History ni Christophe Bouton.

Mga Susing Salita: pamanang kultura; antigong bahay; Lungsod ng Malolos; Halagang pangkasaysayan; Kultural na Ambag

TPHS-I-006

A Practical Branch and Bound Method for Heuristic Open Shop Scheduling to Minimize Total Weighted Tardiness

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Abstract: The open shop scheduling problem is sequencing *n* jobs with deterministic processing times at *m* machines when order of machine processing is immaterial. A branch and bound method of open shop scheduling for minimizing total weighted tardiness is suggested based on the partial backward job list on the longest total processing (i.e. “bottleneck”) machine. Depth-first schedule generation is suggested to arrive at full schedule fit on weighted tardiness (WT), and continuing search on branches whose fathomed lower bound WT are lower than all other branches searched so far. Generating sequences on non-bottleneck machines were suggested, as well as neighborhood swap steps to find incremental improvements on WT schedules. An illustrative example demonstrates the different cases of local search decisions that can be encountered in the practical scheduling procedure.

Keywords: Open shop scheduling; total weighted tardiness; heuristic

TPHS-I-007

Programming the Consciousness of a Non-living thing: A Freudian Analysis of Artificial Intelligence

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Abstract: A general definition of a robot is a machine programmed to carry out certain tasks or actions. While industrial robots have their place in society, the popularity of artificial intelligence creates a narrative around the concept of humanoid robots and the limits of technology when it comes to creating or transferring consciousness. The question is how far we can go with creating a robot that is as human-like as possible. For a robot to have a mind akin to that of a human's, it must be capable of recognizing moral values and generating its own thought process the way a typical human does. In this paper, I shall be using Freud's theory of the tripartite psyche to examine how humanity would fare in a robot whose traits and actions are entirely programmed. My objective is to see if we can program consciousness such that a robot can fully act on its own volition without direct human intervention. With that in mind, I also enquire into the ethics of robot consciousness and its consequences on society if such a robot came into existence. Many questions on morality such as the treatment of robots with human minds would have to be resolved, which our society might not be prepared to answer. I hence look into the repercussions of artificially creating a psyche, especially if it's modeled on the human id, ego, and superego.

Keywords: consciousness; Freud; human; psyche; robot

TPHS-I-008

The Baclayon Church (Bohol) Debris of Mortar: A Geomaterial Dimension of Philippine Historical-Cultural Church

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Abstract: Heritage is the totality of tangible and intangible inherited identity in a society. Different churches are tangible ancestral heritage with its unique architectural framework and artistic elegance. Baclayon church as heritage is one of the earliest historical-cultural structures by the Spanish conquistadores with its unique baroque architectural design. Structural materials include adobe, coral stone, bricks and limestone with organic adhesive additive like eggs, oil and viscous plant extracts. In October 15, 2013 a 7.2 earthquake devastated the province of Bohol with Baclayon as one of the most affected. This research explores the Baclayon church: the historical-cultural testimony and mineralogical components of its mortar. The methodology used is a complementary study on narrative from archival data files and geomaterial characterization of different fragments. From the debris, samples with code BCB1, BCB2 and BCB3 are analyzed for its chemical components using Shimadzu FT-IR and ED-XRF. From this analysis, the major mineralogical bulk is calcite. Based from FT-IR spectra, the adsorption peaks are located in the calcite range point and in complement with the ED-XRF. The greater volume of calcite is 95.139 % (BCB1), 95.131 % (BCB2) and 94.190 % (BCB3). Aggregate materials like silicates are limited to a minimal proportion. Mineralogical constituents include strontium, silicon, potassium, iron, sulfur, zinc, copper, nickel, lead, phosphorus, magnesium and lutetium. Traces of inorganic barium and lithium as well as organic amine group related to protein compounds are identified using the Shimadzu spectral library as reference. The mineralogical composition indicates that the binder is a hydrated mortar containing lime particles. Lime mortar is a primary material for the conservation of historical-cultural structures which are significant for aeration and water absorption.

Keywords: church, heritage, mortar, Fourier Transform Infrared (FT-IR), Energy Dispersive X-ray Fluorescence (ED-XRF)

TPHS-I-009

Sport as a National and International Integration: The Case of the 1981 Manila Southeast Asian Games (11th SEA Games Dec. 6-15, 1981)

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Abstract: The Southeast Asian Games (SEA Games) is a biennial multi-sport event involving athletes in countries in Southeast Asia. Its precursor is the South East Asian Peninsular Games (SEAP) that was established on May 22, 1958 with Myanmar, Cambodia, Laos, Malaysia, Thailand and Vietnam as the founding members. In 1977 Brunei, Indonesia and the Philippines were formally admitted that coincide with the changing of SEAP to Southeast Asian Games Federation (SEAGF) and from there on the games where known as Southeast Asian Games.

In the case of the Philippines, the country first hosted the event in December 6 to 15, 1981. Sport has long functioned as a means of forging unity in national and international level. This paper seeks to understand the context, intended aim, and pragmatism of such sporting event. At a national level Marcos believed that "the real lesson and the lasting legacy of our sports heroes is one of discipline, hard work, perseverance, will, determination and character. These are the virtues that make champions of men in the athletic field or in real life. These are the virtues that enrich our everyday lives. The most urgent problem that faces us today is how to make every citizen a productive member of his community." At the international level, a sport event was a valuable aid to diplomacy in promoting the Philippines to be politically stable and economically progressive despite of the stigma of Martial Law in the country (Martial Law was formally lifted in January 17, 1981 through Proclamation No. 2045). Sport as a tool is very potent in promoting unity, camaraderie and brotherhood, values that are essential in nation building and molding an image indispensable in a regional scale---sport as an apparatus for national and international integration.

Keywords: 11th SEA Games; Martial Law; and Sport Studies.

TPHS-II-010

Poisson Simultaneous Autoregressive Modelling of National Household Targeting System for Poverty Reduction (NHTS-PR) Data

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Abstract: Creating the most efficient solution to diminish the prevalence of poverty in the Philippines remains as one of the country's major struggles. This paper formulates a spatial model that could aid in poverty reduction using the NHTS-PR 2015 data to identify which indicator variables have significant relationships with poverty count. Given the use of count data for modeling, the Simultaneous Autoregressive (SAR) model was modified to include the Poisson regression approach in the estimation of parameters. The Poisson-SAR model was generated using the backfitting algorithm and were compared with the Ordinary Least Squares (OLS) model for model accuracy. It was found that the Poisson-SARerr model with regional and class dummy variables had a lower Mean Absolute Percentage Error (MAPE) value and provides a more accurate poverty map.

Keywords: spatial autocorrelation; Moran's I; Lagrange Multiplier; simultaneous autoregressive models; Poisson regression; backfitting algorithm

TPHS-II-011

Independent [1; 2]-sets in a Cactus Graph

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Abstract: A simple connected graph is called a cactus graph if every edge of the graph belongs to at most one cycle in the graph. The set of all cactus graphs is a very big family of graphs. Thus, we try to classify them according to the following parameters: $k \geq 0$; $\delta \geq 1$; $\Delta > \delta$. Here, k denotes the number of cycles in the graph, δ is the minimum degree of the graph and Δ denotes the maximum degree of the graph. Thus we consider the set of all cactus graphs having these parameters to be in the set $C(k, \delta, \Delta)$.
A [1; 2]-set S in a graph G is a vertex subset such that every vertex not in S has at least one and at most two neighbors in it. With this, we also say that S is a dominating set of G: If the additional requirement that the set be independent is added, that existence is not guaranteed in every graph. In this paper, we look into independent [1,2]-sets in a cactus graph for some values of the parameters k, δ, Δ. We also study the minimum and maximum cardinality of an independent [1,2]-set in this graph class.

Keywords: Cactus Graph, Independent set, Dominating set

TPHS-II-012

Transition Probabilities on Wheel Graphs: An Application of Evolutionary Games on Graphs

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Abstract: Evolutionary Graph Theory is the study of how population structures affect evolutionary dynamics. Its main applications involve computing for fixation probabilities and applying Evolutionary Game Theory by playing evolutionary games on different graphs. The focus of this paper is an application of the concept of transition probabilities, a necessary precursor in solving for fixation probability for most graphs. In particular, this paper focuses on studying the transitions on a wheel graph of order five through the introduction of transition diagrams. A transition diagram is a tool that demonstrates how a population may update itself on a certain graph. These diagrams also reveals how the complexity of the wheel structure presents unique difficulties in obtaining transition probabilities, as compared to the ease by which such probabilities can be found for other graphs.

Keywords: Evolutionary Graph Theory, Evolutionary Game Theory, wheel graph, transition probability, transition diagram

TPHS-II-013

A Cubic Harmonious Labeling of Paths

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Abstract: Graceful labelings of graphs have evolved that special types of graceful graphs are being discovered. One of these special types of graceful labeling is the harmonious

labeling of graphs as introduced by Graham and Sloane. Harmonious graphs have branched out to more specific kinds such as the odd harmonious graphs, even harmonious graphs,etc. Recently, two other kinds of harmonious labeling were introduced, which resulted in changing the co-domain of the injective map that will be defined. These were the square harmonious labeling in 2016 and the cubic square harmonious labeling in 2017. One of the graphs that were shown to be, not just harmonious, but both square harmonious and cubic harmonious were those of paths. In this paper, another way of labeling paths in order for it to be cubic harmonious was established.

Keywords: Paths; cubic harmonious labeling; cubic harmonious graph(s); injective function (or injection); bijective mapping (or bijection)

TPHS-II-014

On Efficient Zero Ring Labelling of Graphs

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Abstract: A zero ring R^0 is a ring in which the product of any two elements is 0, where 0 is the additive identity of the ring. In [3] et. al, introduced the notion of a zero ring labeling of a connected graph G, where vertices are labelled by the elements of the zero ring such that the sum of the labels of adjacent vertices is not equal to the additive identity of the ring. The zero ring index of a graph G is the smallest positive integer (G) such that there exists a zero ring of order (G) for which G admits a zero ring labeling. In [1], Reynera, M. determined the zero ring index of some special families of graphs. In this study, we introduce the notion of an e cient zero ring labelling of a graph G: A zero ring labelling for G, f_K is called a k-zero ring labeling of G if jK = $ff_K(u) + f_K(v)$: uv 2 Eg j = k. If k = (G) where (G) is the maximum degree of a vertex in G;, then the labelling f_K is called an efficient zero ring labelling. We provide an efficient zero ring labelling for some families of graphs.

Keywords: Zero ring Labelling, Efficient Zero Ring Labelling, Zero Ring

TPHS-II-015

Using Latent Class Analysis in Determining Risk among Filipino Young Adults and Adolescents

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Abstract: Latent Class Analysis (LCA) is a person-centered approach in grouping respondents into classes of latent variables using observed categorical data. The analysis was used on six risk indicator variables: alcohol consumption in a day, cigarette smoking in a day, marijuana use in the past 30 days, number of sexual partners for the past 3 months, depression, and suicidal ideation, obtained from the database of a larger study by Sta. Maria, Arcinas and Arcilla in 2014 involving a random sample of 1757 students from state university and colleges in two provinces in Region IV-A. Through the comparison of the different class models, LCA has resulted to an optimum of four subgroups: High-Risk, Low-Risk, Poor Mental Health, and Legal Substance User. The probability that respondents in a given class have engaged in a dysfunctional action, and the probability of membership to each labeled class were established.

Keywords: Risk Behaviors; Latent Class Analysis; Young Adults and Adolescents.

TPHS-II-016

The Nationalist Economist Crusade of Salvador Araneta

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Abstract: The Philippines obtained her political independence from the United States on July 4, 1946, but she proved to be powerless in disengaging herself from the imperialist hold of her former colonial master. Confronted with the challenge of rehabilitating the Philippines that suffered massive damages wrought by the Pacific War, the Philippine government was compelled to accede to the onerous stipulations attached to the grant of the rehabilitation aid, to wit, the continuation of the free trade relations and extension of parity rights to the American citizens, which were encapsulated in the Bell Trade Relations Act. For sure, these lopsided arrangements had forestalled the industrialization of the Philippines and had maintained the American economic control over its erstwhile colony. Pursuing relentlessly a nationalist struggle in the 1950s, Dr. Salvador Araneta, a staunch nationalist economist, vigorously fought for economic independence. Appropriating the concept of nationalism as a "philosophy of power" as put forward by the uncompromising nationalist Alejandro Lichauco, the writer argues that political nationalism signifies that the state should exercise its authority to govern itself and the political power is vested on the Filipino people. Economic nationalism, by the same token, denotes that the Filipino people should assert its power over the means of production. Employing the historical methodology, this paper aims to examine the nationalist economist crusade of Salvador Araneta, delving into his views on economic nationalism, industrialization, "limited free trade" and economic planning as propounded in his writings and the ramifications of his crusade. The writer deems it necessary to provide an account of American economic intervention in the 1940s and 1950s and the factors that must have provided the impetus to Araneta's nationalist crusade.

Keywords: Salvador Araneta; economic nationalism; "limited free trade"; industrialization; economic planning

| WOMEN, CHILDREN, FAMILY AND THE ELDERLY

WCFE-II-001

Ang Pagsapit ng Kamuwangan sa Pelikula: Pagbakas sa Konsepto ng Coming of Age sa Pelikulang Bagets (1984)

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Abstrak: Nananatiling manipis ang linyang naghihiwalay sa konsepto ng teen film at coming of age partikular na sa lokal na konteksto. Isa sa rason na maaaring makita rito ang kakulangan ng mga pag-aaral patungkol sa dalawang nabanggit na genre lalo na sa coming of age. Sa ganitong diwa, layon ng papel na ito na mabakas ang pagkakaiba ng teen film at coming of age gamit ang pelikulang Bagets (1984). Isang panimulang hakbang ang papel na ito sa mas malaking proyekto ng mananaliksik patungkol sa coming of age films sa Pilipinas. Mahahati ang papel sa dalawang seksyon. Tatalakayin sa unang bahagi ang mga kaugnay na literatura tungkol sa teen film, coming of age film, at mga salik na pumapaloob sa pagsasawastong gulang o *adulthood*. Matapos malinaw ang mga nabanggit na konsepto, dumako ang papel sa pagsusuri sa pelikulang Bagets (1984). Nakatuon lamang ang pananaliksik sa pagtukoy ng mga pagdanas ng pagsapit ng kamuwangan o coming of age ng limang pangunahing tauhan na sina Adie (Aga Muhlach), Tonton (William Martinez), Toffee (J.C. Bonnin), Gilbert (Herbert Bautista), at Arnel (Raymond Lauchengco). Lumabas sa pag-aaral na pawang nakaranas ng problema o pagdurusa ang limang pangunahing tauhan bago lumabas sa kanila ang ilang salik ng pagsapit ng kamuwangan. Nagkaroon sila ng mas malawak at malalim na pag-iisip, naging malinaw ang direksyon sa buhay, at natutuhang magpasya nang walang pamimilit o pandidikta ng iba.

Mga Susing Salita: Bagets**;** Coming of age; Teen film; Pelikulang Pilipino; adulthood

WCFE-II-002

(Re)bisyon, (Re)imahinasyon at (Re)Konstruksyon sa Babae: Ang Paglandas, Paglalakbay at Pagbaklas sa Pag-akda ni Bebang Siy sa Babae at bilang Babae

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Abstrak: Sa larang ng panitikan naging malaking suliranin ang mabagal na pag-usad ng mga babaeng manunulat dahil sa dominasyon ng kalalakihan. Sa pagtuon sa akda ng kontemporanyong panahon mahalagang mapagtuunan pa rin nang pagtingin ang espasyo nang kababaihan hindi na bilang paghahanap at pagtasa sa kanilang kalakasan upang sabayan ang daluyong nang pag-aakda ng kalalakihan. Sa halip sipatin ang kanilang pagsuong sa mabilis na pagbabago nang panahon. Ang kanilang pagsasaysay ng mga personal na danas na lumilikha ng kanilang paksang naglalapit sa danas naman ng mga mambabasa ay nagbibigay ng bagong bihis at anyo sa kanilang pag-aakda. Layunin ng papel na ito na landasin ang mga akda ni Bebang Siy at hulmahin ang konseptuwalisasyon ng (re)bisyon (revision) o ang pagtatangkang magkaroon ng muling pagtingin batay sa hinaing talakay ng mga akda sa tuong paksa, (re)imahinasyon (reimaging) pagbuong muli ng imahen ng kababaihan batay sa mga katangiang babaklasin mula sa mga persona ng karakter sa mga akda ni Bebang bilang lunsaran at (re)konstruksyon (reconstruction) ang bagong babae bunga nang pagtatagpo ng mga babae sa kasalukuyang kalakaran at ang imahen na binuo mula sa haraya ng may-akda (Bebang)upang tuluyan nang makatiwalag (?) sa naitakdang kultura ng kalagayang patriyarkal at makasabay sa daloy ng mga penomenal na paksa.

Mga Susing Salita: (Re)bisyon, (Re)imahinasyon, (Re) Konstruksyon, Babae, Feminismo

WCFE-II-003

The Curious Case of Miriam "Celebrating Singlehood" (A Rereading of the Story of Miriam in Exodus)

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Abstract: Singlehood have always carried with it an issue that is affecting lives especially women. When a woman is single and is in her middle age, the question that a single woman must deal with is: "When are you getting married?" Along this line, familiar terms are also used to mean single women, such as spinster and old maid. Usually they are portrayed to be hostile, ugly, grumpy, and depressed --a picture of negative undertones. Will women be more empowered in the era of the Fourth Industrial Revolution(4IR), especially never-married women? This paper aims to put into discussion the life and struggles of never-married women in this age of digital possibilities. Through the optic of feminist liberation hermeneutics, this work will use as a framework in feminist reading the story of Miriam in the bible, from being the unnamed sister when Moses was born to her courageous act when she leads all the women in song after their deliverance from Egypt. Thus, from a post-colonial feminist perspective, the story of Miriam is proposed to be read as a model to the single state of life of women whose adaptive response in the Fourth Industrial Revolution may be relevant. As there is only one vocation – the universal call to holiness no matter what state of life one should adopt, this hopes to bring a more decisive voice when it comes to valuing as persons those who are not married and those who cannot contribute to the procreation of offspring.

Keywords: Never-Married Women; Feminist Hermeneutics; Holiness; 4IR

WCFE-II-004

Discourses in a Child Caring Agency: A Community of Practice Perspective

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Abstract: This paper reports findings of a case study which is part of a wider project borne out of a two-year ethnographic study of a child caring agency. Specifically, this paper argues that discourses of a child caring agency can be understood in terms of mutual engagement, joint enterprise and shared repertoire. Using data from policy documents and participants' interviews, focus group discussions and site visits, data reveals that discourses are established through a set of activities that require participation of all members of the agency, and that discourses regulate different levels of expectations and actions of participants.

Keywords: Child Caring Agency; Community of Practice; Joint Enterprise; Mutual Engagement; Shared Repertoire

| RVRCOB
GRADUATE COLLOQUIUM

COB-GSC-001

How practical does the increase in capital framework imposed by the regulators maximize the efficiency of the non-life insurers?

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Abstract: The Philippine Non-life insurers had been experiencing a lot of challenges. One of the most pressing concerns is the increase in PUC as stated in the revised Republic Act (R.A.) 10607 paving the way for the ASEAN liberalization. The main issue in increasing the PUC is that it is causing the balloon of the volume of PUC but the market density and penetration remained to be low. In fact, in 2013, the Non-life sector alone garnered at least Php 27 B but the premiums earned is just Php 21 B only. Since mergers and acquisition will be one of the main strategies in the future, the widely accepted combined ratio was converted into technical efficiency scores using DEA to further test if increasing the market share (proxied by premiums earned) can significantly cause a decrease in the efficiency scores of the firms. The extension of the classical theory of industrial organization, Quite Life Hypothesis (QLH), will be the theoretical framework of the current study. QLH argued that as the market share increases, the efficiency decrease due to the fact that the owners will not be able to monitor their managers as the organization gets bigger.

Keywords: Technical Efficiency; Non-life insurers; Market share; Paid Up Capital (PUC); Quite Life Hypothesis

COB-GSC-004

Financial Statement Users' Perceptions on the Extensiveness of the Note Disclosures of Publicly-listed Companies in the Philippines

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Abstract: The notes to financial statements disclo Abstract: se relevant information to existing
and potential investors and other stakeholders for the purpose of decision-making. Relevant users have the capacity to comprehend the information given in these financial statements. However, throughout the years, there had been a growing increase in the volume of financial statements which is caused by revisions of current standards and issuance of additional reporting standards hence, financial statements are experiencing disclosure complexity issues. This hinders financial statements to become relevant, readable, and comprehensible, which are causing rising concerns on users. Thus, this study aims to describe users' perceptions on the extensiveness of financial statement note disclosures of publicly-listed companies in the Philippines. Using non-parametric tests, descriptive statistics and Venn diagrams, the results showed that financial statements users need enough accounting knowledge or background in reading financial statements. Also, financial statement users are recommended to focus more on mandatory disclosures as they are deemed to be more relevant as compared to voluntary disclosures and to avoid the occurrence of information overload which can lead to a wrong decision.

Keywords: Financial Note Disclosures; Disclosure Extensiveness; Information Overload; Linguistic complexity; Disclosure complexity

COB-GSC-005

Determinants of stock market investment intentions among DLSU finance students

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Abstract: According to the Stock Market Investor Profile (SMIP) annually released by the PSE, there is just almost 900,000 retail investors out of the ballooning 110 million population in the Philippines. Despite the effort of the PSE to conduct awareness seminars in rural areas, there is still low market penetration. Since 2008, the age bracket of 18-29 years old was the lowest but fast-growing among retail investors. This digital native generation makes it easy to transact in the market. Also, students were reported by the Financial Inclusion Survey (FIS) of BSP as the lowest stock market investors at 2.7% only. This paper aims to build a typological framework that analyzes the factors that will influence the investment intentions among finance students and to provide the guide to the stock market practitioners and regulators in developing strategies targeted to finance students.

Keywords: Stock market investment intention; consumer behavior theory

COB-GSC-006

Micro Lens: Examining the Contribution of Resources and Capabilities to Competitive Advantage and Performance of Micro Enterprises

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Abstract: This paper empirically examined the contribution of resources and capabilities to competitive advantage and performance of micro enterprises within the context of resource-based view. Quantitative research method using cross-sectional survey design was employed. The data came from registered micro enterprises in Catarman. The result showed that the value of resource-capability combinations is inversely related to competitive advantage while the rareness of resource-capability combinations is positively related. No inference can be made as to the mediating effect of competitive advantage between value of resource-capability combinations and performance and between rareness of resource-capability combinations and performance. As limitation of this study, the result came from different business types, thus generalizability of the findings to specific type of business cannot be made. This study added support to the application of resource-based view particularly its applicability to micro enterprises in rural areas in developing economy and unravel important implications for micro enterprises in Catarman.

Keywords: micro-enterprise; resources; capabilities; competitive advantage; performance

COB-GSC-007

Describing the Relationship Between e-Wallets and the Consumer's Intention to Use Them

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Abstract: The goal of this paper attempts to find the relationship between the perceived ease of use, perceived usefulness and the intention to use of mobile wallets in an icafe environment. The author wishes to determine if icafe users who perceive mobile wallets as easy to use and useful are more likely to use them while playing in an icafe. The theoretical framework used for this study was the TAM (Technology Acceptance Model). This study also uses the Ease of Use scales. The study was conducted by distributing a questionnaire to a sample of 100 patrons in a single icafe branch in Manila. At the moment, it is estimated that this icafe branch has about 1000 regular patrons.
The results showed the following that potential users who perceive that e- wallets

are easy to use perceive that e-wallets will be useful. Potential users who perceive that e-wallets are easy to use are more interested in e-wallets.
Potential users who perceive that e-wallets are useful are more interested in e-wallets. Potential users who are interested in using e-wallets are more likely to say that they will be using e-wallets. Potential users who perceive that e-wallets are useful are more likely to say that they will be using e-wallets. There is no mediating effect between the perception that e-wallets are easy to use, the perception that e-wallets will be useful, and the interest in e-wallets. There is also no mediating effect between the perceived usefulness of mobile wallets, the interest in using e-wallets, and the intention to use e-wallets. There is also no mediating effect between the perceived ease of use of e-wallets, the interest in using e-wallets, and the intention to use e-wallets. Finally, there is no mediating effect between the perceived ease of use, the perceived usefulness and the intention to use e-wallets.

COB-GSC-008

Theory of Planned Behavior versus Entrepreneurial Event Model: Competing or Complementing Models of Intention?

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Abstract: Intentions are said to be the best predictor of any planned behavior. Two of the more commonly used intention models are the Theory of Planned Behavior (TPB) and the Entrepreneurial Event (EE) Model. In terms of predictive power, each model has produced mixed results. More recently, efforts have been made to integrate the two models to see if it can provide better predictive performance. Initial attempts have been positive. The objectives of this study is to add empirical support for the use of the integrated model and to verify its applicability in the Philippine context. A survey was administered to 141 university students in a Philippine agricultural university to find out the determinants of agribusiness entrepreneurship intention which is the dependent variable in this study. The predictors in TPB model namely, attitude, subjective norm and perceived behavioral control were used as independent variables. The predictors in the EE model namely, perceived desirability and perceived feasibility were used as mediating variables. Using partial least squares structural equations modeling, the TPB and EE models were first tested separately then compared with the combined model to check their predictive performance. While the EE model proved superior to the TPB model, the integrated model was able to provide a better understanding of the interactions among the variables.

Keywords: Theory of Planned Behavior, Entrepreneurial Event Model

COB-GSC-009

The Impact of Employees' Resilience on Organizational Commitment in Cavite Economic Zone

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Abstract: The study explores the relationship between employee resilience and organizational commitment in the context of Philippine manufacturing firms. The study sample comprised employees (N = 58) working in the Cavite Economic Zone and data were collected with the help of online survey. A model was developed and tested in which the effects of resilience on organizational commitment were hypothesized to be moderated by demographic variables. The hypotheses testing were done using correlation, independent sample t test, ANOVA, and regression. The results provide empirical evidence for the positive relationship between resilience and organizational commitment but no moderation effect was found on demographic variables.

Keywords: Employee resilience; organizational commitment; labor turnover; manufacturing; Philippines

COB-GSC-010

The Impact of Financial Literacy in Financial Inclusion: Examining the components that matter for financial inclusion of the Filipino people

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Abstract: The purpose of the study is to examine the impact of individual components of financial literacy in promoting financial inclusion of the Filipino people. The study was participated by 33 individuals who were invited to be part of this research through the use of social media and in a form of convenient sampling. The questionnaire tries to measure the financial inclusion by checking the effect of various financial literacy constructs such as attitude, behavior, knowledge and skills. The results revealed that attitude, knowledge and skills or three out of four identified components positively affect the financial inclusion of the Filipino.

Keywords: Financial literacy, financial inclusion, attitude, knowledge, skills

COB-GSC-011

Intentions to Family Business Succession: the Case of Chinese-Filipino and Filipino Family Businesses

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Abstract: The issue of succession is a complex challenge facing family businesses. Intergenerational succession is surely a priority for most family business owners who wish to see the longevity of the establishment and legacy passed on to their family members. Despite this, few family businesses appropriately plan for succession, putting more emphasis on planning for management and operations (Morris, Williams and Nel, 1996). The purpose of this study is to explore the various roles Chinese-Filipino and Filipino would-be successors of family businesses assume, and how these roles influence the intention to enter into the family business. This study made use of a qualitative approach, particularly personal interviews with young
college students whose families manage businesses. The study also aims to compare how roles are perceived and practiced by Chinese-Filipino and Filipino successors to better understand the kind of impact culture has on family business succession. There is much to be examined in how well individuals understand the expectations of them and how willing they are to embrace and act upon them. Overall, the prominent pattern which emerged in the study is that expectations and intentions of participants from Filipino families differ significantly from those who belong to the Chinese-Filipino families. This spotlights the importance of cultural factors in driving intentions to succeed into a family business.

Keywords: Family Business Succession

COB-GSC-012

Social media's reaction to Archer's graduation: A case of an unofficial brand ambassador

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Abstract: The graduation of Archer, the cat from De La Salle University, became a trending topic in Twitter. This study examined the Twitter posts and analyzed the patterns from these series of tweets and

retweets. A content analysis was applied on the social media feeds related to the event. Using summative content analysis, the most frequently occurring words are graduation, cats, Archer, DLSU and mascot. The first four words are expected given the context of the event but an analysis of the word "mascot" has shown that Archer is better suited as a brand ambassador because he humanizes the DLSU brand by presenting the value of education and the vision of finishing university through his graduation ceremony. Although he is an unofficial ambassador, the results from the study can provide insights for organizations to develop their social media engagement strategies beyond mascots and influencers.

Keywords: Twitter, brand ambassador, mascot, content analysis, Archer

COB-GSC-013

Gamification in improving HRIS Usage

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Abstract: Respondents comes from different organizations like schools, banks, government agencies, and other sectors. The position of the respondents vary from rank and file to the management positions and was categorized as either operational or managerial users. Data were collected as a result of snowballing the survey utilizing referral and social media. A significant positive correlation was observed among all the variables used in this study including HRIS use, HRIS success factors, and gamification. Almost all of the correlation coefficients indicates a large effect size except with Gamification and HRIS use with moderate effect size. HRIS success factors significantly predicted HRIS usage with approximately 55% explanatory power. On the other hand, multiple regression shows information quality among the other constructs of HRIS success factors is the only significant predictor of HRIS use. Lastly, the moderation analysis whether gamification moderated the relationship between HRIS success factors and HRIS use indicated that the interaction model did not explain significantly. Therefore, gamification as a moderation variable was not supported.

Keywords: gamification, HRIS success factors, HRIS use

| POSTER PRESENTATIONS

POS-001

Smart tourism: The ASEAN way

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Abstract: Today's technology—internet of things (IOT), internet of services (IoS), and cyber-physical systems (CPS), for instance—has ushered a new structure in production processes and has redefined consumption patterns and behavior. This paper focuses on the application of the fundamental of concepts of this emerging industrial paradigm, dubbed "Industry 4.0"—such as smart factory, new systems in the development of products, smart product, cyber-physical systems and so on, to the travel and tourism industry with the objective of identifying a strategy or two in promoting the ASEAN tourism industry. As similar conditions that brought about the transformation of industries exist in the services sector, the literature documents technology-motivated changes in the delivery and the consumption of travel and tourism products and services. Indeed, the analysis of the current travel trends points to one key area of cooperation for the ASEAN, intelligence sharing, that can be used to design, produce, and promote personalized tourism products as well as improve the protection of tourism workers, guests, and tourism sites.

Keywords: Industry 4.0; ASEAN; travel and tourism industry; internet; AI

POS-002

Correlates of Cardiovascular Endurance Profiles of Computer Gamers in the City College of Angeles

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Abstract: Addiction to computer games affects various dimensions of health and increases risks for physical problems, anxiety, and depression; and results to decrease social functioning (Zamani, Chashmi, and Hedayati, 2009). With these in mind, one of the hallmarks of an active lifestyle, such as cardiovascular endurance, will eventually be affected. Endurance can be denoted or related to a race or other sporting event that takes place over a long distance or otherwise demands great physical stamina. This study described the cardiovascular endurance levels of computer gamers and non-computer gamers of the City College of Angeles, their gaming history, and consequent effect to their current endurance level. Twenty (20) respondents recruited through judgment sampling underwent self-administered survey on their demographic and gaming histories. To assess their endurance levels, actual tests conducted were: (a) three (3) minutes step test and (b) Beep test. After data collection and field works, descriptive and inferential statistical analyses were performed to describe, differentiate, and correlate endurance levels of computer gamers and non-computer gamers. The findings of the study reveal that both gamers and non-gamers have significant differences in terms of cardiovascular endurance where the non-gamers performed better.

POS-003

Preparedness on Disasters and Calamities of Public School Buildings in the City of Malolos: Inputs for Risk Reduction Management Program

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Abstract: This paper presents a comprehensive disaster risk analysis and

assessment of public school buildings in the City of Malolos in terms of Flood, Fire, Typhoon, and Earthquake. These were met by determining the risk indices of the subject school buildings and the corresponding weights of the indicators utilizing the Multi-Criteria Decision Analysis. The components of Seismic Risk are (1) Rapid Visual Screening, (2) Non-structural Hazard, (3) Asset Value, (4) Classroom Demographics, and (5)Seismic Proximity Hazards whereas (1) Hazard, (2) Exposure, (3) Vulnerability, (4) Sodt Countermeasure, and (5) Hard Countermeasure re the indices for Flood, Fire, and Typhoon Risks. Results of these assessments were then programmed into hazard maps applying Geographic Information System (GIS). After thorough investigation, it was found out that public school buildings in the city were risky primarily to flood followed by fire, typhoon, and earthquake. With these results, it was recommended to redraw and strengthen the Risk Reduction Management Plan and improve the disaster mitigation structures of the affected schools to reduce the levels of risks correspondingly.

Keywords: Risk Analysis, Risk Assessment, Risk Index, GIS, MCDA-AHP, Disaster Risk

POS-004

Public Servants Serving the Environment through Urban Agriculture

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Abstract: The research looked over the possibility of Urban Agriculture and encountered a lot of certain topics such as Production of Foods, Lack of Space, Early Childhood Education, now Urban Agriculture offers such an alternative ways to continue with the flow of modernization without any complications. This research covered implications of Agriculture in cities once it's already implemented. The goal of this study is to find ways of implementing Agriculture in urban areas that can benefit the people and also the country. Policemen of Baguio City who participated in the *Gulayan sa Kapulisan* program were the chosen participants for the study. The researchers made use of semi-structured interview as the instrument in data gathering for the research. The policemen of Baguio City applied organic farming, vertical gardening and crop rotation which is a way to maximize the limited space available. Urban Agriculture interplays with food production, early childhood education, and space wherein it provides secure access to food and the policemen were raised in a childhood of knowing basics of gardening, and maximizing space but certainly some were affected by road widening. As a conclusion, Agriculture is open for any profession wherein the policemen became role models for students and bystanders because they motivated people and sparked their interests.

Keywords: Urban Agriculture; Policemen; Sustainabilty; Urbanization; Farming

POS-005

Communication in the Context of the Fourth Revolution

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Abstract: The emerging fourth generation technologies creates disruptions which may either enhance creativity and productivity or exacerbate global problems. Evaluation of the determinants of such disruptions point to impacts on communication in terms of (1) Changing ways of creating, sharing and using information (2) Enhancement of the biological functionality; (3) Changes in the way people conduct businesses (4) Risks, hazards and other negative disruptive determinants (5) the need to adapt and

evolve governance systems and (6) the need for a free global communication network.

Keywords: communication, governance, fourth revolution, digital public sphere

POS-006

An Overview of Image Segmentation and Feature Extraction Techniques for Pathogen Detection in Crops

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Abstract: Image segmentation is the process of dividing images into different parts, with each part having similar characteristics. Image segmentation has applications in many different domains of science, and this paper focuses on the techniques used to detect and identify pathogens in various crops. Image segmentation also plays a big role in classifying images through neural networks because once the image is segmented it could be used to be fed to a neural network for classification. The paper contains up to date and state-of-the-art techniques for image segmentation. It reviews and compares accuracy outputs of each paper. Each technique performs a different segmentation which is then fed to a classifier that would use the segmented image to either classify or identify the pathogen detected in the crop. This paper can serve as a reference for some of the state-of-the-art techniques in this domain, and as the basis for future research on crop pathogen detection

Keywords: Image processing, pathogen detection, clustering, classification

POS-007

Fusion IT Asset Management System

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Abstract: In a university, it is important to track the movement of IT assets. From the instance of acquiring the asset to retiring it via disposal or donation, an asset manager must be able to know key details such as location and status. However, a common problem is that tracking of assets becomes more and more difficult the larger an organization is. In a university, such is the case given the different offices and rooms that utilize IT assets. As a solution, the researchers developed an IT asset management system to centralize the information across different offices and departments and help the IT asset managers to track assets around the university. To be specific, it is the goal of the researchers to help the IT asset managers to track an asset throughout its life cycle which includes acquisition, installation, deployment, and disposal. The researchers interviewed various personnel involved in this life cycle including the IT asset managers, IT engineers, help desk personnel, and procurement personnel multiple times for clarifications and additional questions. This was performed alongside the development of the IT asset management system and was adjusted accordingly based on new information obtained. The developed solution is projected to increase the effectivity of the organization given the system becomes a centralized source of information across the university.

Keywords: IT assets; asset management; life cycle

POS-008

Ang Pagkakabud at Danas: Ang Ginto sa Konsepto ng Ginhawa ng mga Taga-Paracale

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Abstract: Ang pagkakabud o maliitang pagmimina ng ginto ang pangunahing ikinabubuhay ng mga tao sa bayan ng Paracale. Ang bayang ito ay tinaguriang "Town of Golden Opportunity" ng Camarines Norte dahil sa mataas na sistemang pang-ekonomiko na mayroon ito gayundin ang kulturang nakapaloob rito bilang pagkakakilanlan ng kanilang bayan. Sa loob ng mahabang panahon ay nakapagbigay ng maalwang buhay ang ginto para sa mga taong naglakas-loob na mamuhunan at lumusong sa ilalim ng lupa upang hanapin ang kinang ng ginto. Ilang beses na ring tinangkang ipasara ng Lokal na Pamahalaan ng Camarines Norte ang mga kabudan ngunit saglit na panahon lamang nahihinto ang kanilang operasyon at kalaunan ay pinapatakbo muli dahil sa kawalan ng hanapbuhay ng mga taong naninirahan sa Paracale. Ang papel na ito ay nakasentro sa danas ng mga magkakabud bilang repleksyon ng kanilang personal karanasan sa paglusong sa loob ng mahabang oras upang makapagmina upang nakapagbibigay ng ginhawa para sa kanilang mga sarili at pamilya. Magiging tuntungan ng papel na ito ang "Konsepto ng Ginhawa" ni Zeus Salazar sa pamamagitan ng pagdalumat sa mga personal na salaysay ng mga kabudero at Kulturang Ekonomik upang masipat nang mabuti ang kultura ng pagkakabud na malaking bahagi ng ekonomikong aspeto ng Paracale bilang isang bayan. Layunin ng papel na ito na marinig at maibahagi ang boses ng mga taong nasa likod ng mga makikinang na ginto na ginagawa nating alahas o pandekorasyon sa ating tahanan gayundin ang pagkakakilanlan ng Paracale bilang pagyakap nila sa kultura ng pagkakabud simula noon hanggang sa kasalukuyan.

Keywords: Paracale, Pagkakabud, Pagmimina, Ginto, Ginhawa, Karanasan, Kultura, Ekonomik

POS-009

Ang Bantayog Festival Bilang Daluyan ng Kultura at Pagkakakilanlan ng Camarines Norte

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Abstract: Ang lalawigan ng Camarines Norte ay bahagi ng Kabikulan na kung saan matatagpuan ang kauna-unahang bantayog ng ating pambansang bayani na si Dr. Jose P. Rizal matapos ang dalawang taon ng pagkakabaril sa kanya sa Bagumbayan o Luneta sa kasalukuyang panahon at bilang pagbibigay-pugay sa mga CamNorteño na nagbuwis ng buhay mula sa mapang-abusong mga Kastila upang tayo ay lumaya. Sa loob ng mahabang panahong nakatindig ang bantayog na ito ay ipinanganak ang Bantayog Festival simula noong 1994 na may layuning sariwaan ang katapangan ni Rizal at ng mga taong sumali sa rebolusyon. Sa loob ng isang buwan ay nagkakaroon ng iba't ibang aktibidad at programa ang Lokal na Pamahalaan ng Camarines Norte na nagsisimula sa pagsapit ng buwan ng Abril, taun-taun. Mula rito ay nagkakaroon ng malaking partisipasyon ang labindalawang bayan na bumubuo sa lalawigang ito tungo sa ikatatagumpay ng pagsasawa ng Bantayog Festival. Bilang gabay sa pagdalumat sa Bantayog Festival ay sasandig ang papel na ito sa Sikilohiyang Pilipino ni Enriquez bilang paglalarawan sa kamalayan ng mga CamNorteño sa pagdiriwang ng nasabing festival gayundin ang kanilang kanilang pakikisa at pakikilahok sa mga nakalatag na gawain at aktibidad. Isa rin itong pagtatangka sa larangan ng Cultural Anthropology sapagkat layunin ng papel na ito na maipakita at madalumat ang malaking ambag ng kauna-unahang bantayog ni Rizal bilang salamin ng kultura, pag-uugali at pagkakakilanlan ng Camarines Norte.

Keywords: Bantayog Festival, Jose P. Rizal, Camarines Norte, Kultura, Pag-uugali, Pagkakakilanlan, Kamalayan

POS-010

Pagsipat at Pagdalumat sa Pagkabansot ng Diwang Makabayan

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Abstract: Hindi tiwalag sa masalimuot na realidad ng kasalukuyang lipunan ang kasaysayang humabi dito. Sa pag-uugat ng kasaysayang Pilipino, hindi maisasantabi ang katotohanang ang dalumat ng pagka Pilipino ay ang kabuuang danas nito sa kanyang pag-iral bilang isang lahing naging kolonya ng mga makapangyarihang bansang tulad ng Espanya at Estados Unidos. Sa kabila ng "kasarinlan" ay nagpapatuloy pa rin ang kolonisasyon sa kultura at kamalayang Pilipino. Ang pagtatalaban ng iba't ibang salik tulad ng historikal, kultural, ekonomik at politikal na konteksto ay mahahalagang batis sa pag-unawa sa pormasyon ng kakanyahan at kamalayang Pilipino sa kasalukuyan.
Sa papel na ito, tatalakayin ang tatlong mahahalagang salik na nagdudulot ng pagkabansot ng diwang makabayan at kaakuhang Pilipino. Una, ang epekto ng globalisasyon na nakabalot sa dalang halina ng teknolohiya at pag-unlad na nagtutulak upang magahum tayo ng mga makapangyarihang bansa; ikalawa, ang kolonyal na danas na tumimo sa kamalayang Pilipino na naging sanhi ng kabiguang hubugin ang mga mamamayan bilang isang organikong buo at sa halip ay makikita natin ang isang bansang nagkawatak-watak dahil sa malaking agwat na naghihiwalay sa ordinaryong masang Pilipino at iilang elit at oligarko; at ikatlo, ang pagsusuri ni Niel Mulders sa ebolusyon ng lipunan at at Weltanschauung (worldview) ng mga Pilipino gamit ang lente ng kultura at ilang pagmumuni-muni at paghahambing sa panlipunang istruktura ng iba pang bansa sa Asya.
Sa pagitan ng alaala ng kolonyal na danas at ang bumubukal na adhikain ng pagkabansa, maitatanong natin sa ating mga sarili, ano na nga ba tayo ngayon bilang mga Pilipino?

Susing Salita: Diwang Makabayan, Globalisasyon, Kamalayang Pilipino, Weltanschauung

POS-011

HULAGWAY: Ang Tahimik na Himagsik ng Babaeng Makata

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Abstract: Katulad ng buhay, puno ng kontradiksyon ang mga tula sa antolohiyang Banayad ni Rowena Festin. Ang artikulasyon ng kanyang poetika ay sariling danas at malas niya bilang isang makata at babae. Sa isang lipunang sinusukat ang kabuluhan sa parametro ng pagiging isang mabuting asawa, mapagkalingang ina, masunuring anak at palasimbang birheng matandang dalaga, ang puwang ng pagbalikwas ay napakakitid, at kung sakaling maganap, nagiging marahas at mapanganib.
Bilang isang makata at babae, inilalantad ni Festin ang kanyang pagbalikwas at mga sari-saring sarili sa kanyang mga tula. Hindi maitatanggi ang metamorposis ng persona mula sa kawalang-lakas na labanan ang takot at pangamba ng pag-iisa hanggang sa pagtuklas sa sarili niyang lakas at alindog. Batid niya ang kanyang kahinaan. Sa panahong tuliro siya dahil sa sala-salabid na suliranin sa pamilya, sa relasyon, at sa lipunan naging gahum ang mga salita upang itulay ang kaibuturan ng kanyang sarili.
Isa si Rowena Festin sa mga nakikipaglaban upang maipasa ang batas sa diborsyo dito sa Pilipinas. Ang kanyang pakikibaka ay patunay na kailangang magkaroon ng tinig at makiisa

sa mga usaping sangkot ang mga kababaihan. Naniniwala siyang kailangang putulin ang anumang ugnayang nakasisikil ng kalayaan at nakawawala ng dignidad sa tahanang dinodomina ng lalaking umaastang panginoon.
Sa pagsusuri ng mga akda sa loob ng antolohiya tatalakayin ang sumusunod na kaisipan: Una, ang metamorposis ng persona sa kabuuan ng antolohiya; ikalawa, ang pagtibag ng isang babaeng makata sa teritoryong inaangkin ng mga kalalakihan; ikatlo, ang paghulagpos ng babaeng makata sa pagkakahon ng lipunang makalalaki, at ikaapat, ang paghubog ng lipunan sa poetika at politika ni Festin bilang isang makata.

Susing Salita: Poetika Pulitika Hulagway Metamorposis Feminismo Babae

POS-012

Pagbuo at Balidasyon ng Glosaryong Waray-Filipino Para sa Mga Migranteng Waray sa Santolan, Pasig

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Abstract: Ang wika ay mahalagang bahagi ng isang kultura. Ito ay sumasalamin sa identidad at kaakuhan ng isang partikular na etnolinggwistikong grupo. Sa pamamagitan ng wika, natutukoy ang pinanggalingan ng tao kasabay ang pagpapakilala sa kulturang pumapaloob dito. Ang Waray ay isa sa mga pangunahing wika ng Pilipinas na sinasalita ng mayorya sa Samar at Leyte. Ngunit, dahil sa patuloy na migrasyon ng tao mula sa mga nabanggit na probinsya patungo sa Maynila, nagiging banta ang dominasyon ng dinatnang wika para sa patuloy na paggamit ng unang wikang kinagisnan. Kaya naman, mahalaga ang papel ng leksikograpiya upang mapreserba ang naturang wika. Layunin ng pag-aaral na ito na mailahad ang nabuong glosaryong Waray-Filipino para sa mga migranteng Waray sa Santolan, Pasig. Na bagamat Tagalog na ang ginagamit na wika ay hindi pa rin maikukubli ang tonong Waray sa pananalita. Samantala, upang maisagawa ang balidasyon sa nabuong glosaryo, ginamit ng mananaliksik ang interbyu at sarbey sa pamamagitan ng isang set ng talatanungan sa mga Waray ng Santolan, Pasig kung kanilang sinasang-ayunan ang pagtutumbas ng mga salitang Waray sa salitang Filipino. Sa ganitong paraan, naniniwala ang mananaliksik na nabibigyan ng bilinggwalismo ng pantay na kapangyarihan ang dalawang wika at naiiwasan ang isyu ng rehiyonalismo.

Keywords: Leksikograpiya, Glosaryo, Bilinggwalismo, Glosaryong Waray-Filipino

POS-013

Ang Mundo ng mga Bakla sa Perspektiba ng Isang Bakla: Panimulang Pagbasa sa Ilang Kuwento ni Chuckberry J. Pascual

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Abstract: Naniniwala sina Rosario Torres-Yu at Rolando Tolentino na sa pagdadalumat ng "Pambansang Panitikan", kinakailangang isangkot ang lahat ng mga salik nito, hindi lamang ang uri, henerasyon, relihiyon, lahi at etnisidad kundi maging ang sekswalidad at kasarian. Nilalayon ng pag-aaral na ito ang mga sumusunod: Una, upang mabigyan ng espasyo sa mga di-tradisyunal na paksa sa kasaysayan katulad ng wika at panitikan ang diskurso ng kabaklaan. Pangalawa, madagdagan ang pag-aaral ng mga panitikan na may kinalaman sa sektor ng kabaklaan at pangatlo, upang basagin ang tradisyunal na pag-aaral ng panitikang kadalasan ay nanggagaling sa sentro at walang pagpapahalaga sa mga panitikang sektoral. Ito ang nararapat na maging tunguhin sa panibagong pagbabalangkas ng "Pambansang Panitikan". Sa pag-aaral na ito, susuriin ng mananaliksik ang limang kuwento mula sa aklat na Kumpisal: Mga Kuwento ni Chuckberry J. Pascual na inilimbag ng UST Publishing House noong 2015. Sisikaping unawain ng mananaliksik ang bawat kuwento gamit ang Teorya ng Pagtanggap o Teorya ng Pagbasa ni

Wolfgang Iser. Sa pamamagitan ng ganitong pagbasa, mabibigyan ng pantay na kapangyarihan ang teksto at mambabasa kung kaya't nagiging bukas sa iba't ibang interpretasyon at perspektiba dahil hindi nakakahon ang kuwento sa iisang kahulugan.

Keywords: Pambansang Panitikan, Panitikang Sektoral, Teorya ng Pagtanggap o Teorya ng Pagbasa

POS-014

Lubena: Ang Siyam na Gabing Tradisyon ng mga Kapampangan

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Abstract: Isang pinakamahalagang tradisyon ng pagdiriwang ang kapaskuhan sa mga bansang sinakop ng mga kastila. Salamin nito ang relihiyong niyakap ng bawat katoliko sa buong kapuluan ng sakupin tayo ng mga kastila. Hudyat ng pagdiriwang ng kapaskuhan ang pagsisimula ng simbang gabi, ang siyam na araw na misang sinisimulan tuwing ika-16 ng Disyembre na magtatapos mismo sa araw ng pasko. Itinuturing ng mga Pilipino bilang isang panata ang pagsisimba ng siyam na magkakasunod na gabi sa paniniwalang mabibigyang kasagutan ang dasal o hiling bago sumapit ang kapaskuhan. Ang mga Kapampangan ay may natatanging tradisyon na ginagawa bago sumapit ang pasko, maliban sa simbang gabi ay nagdaraos sila ng prusisyon an kung tawagin ay "Lubena". Ito ang siyam na gabing prusisyon ng mahal na patron ng bawat barangay ng mga baying nagsasagawa ng ganitong tradisyon. Layunin ng papel na ito na maipaliwanag ang kakaibang pagdiriwang na lubena ng mga Kapampangan, ang pinagmulan nito, ang simbolong pumapaloob sa bawat kagamitang ginagamit at ang suliraning kinakaharap nito sa patuloy na pagdaan ng panahon. Bibigyang linaw din sa pananaliksik ang mga dahilan ng patuloy na pagdaraos ng ganitong tradisyon ng mga ilang bayan sa Pampanga sa kabila ng mga balakid at suliraning kinakaharap nito.

Keywords: pasko, lubena, Pampanga, tradisyon

POS-015

Panlipunang Gamit ng Pulosa sa Lalawigan ng Pampanga

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Abstract: Kilala ang lalawigan ng Pampanga sa mga masasarap na lutuin at sa lalim ng kultura at kasaysayan nito. Tanyag din ang nasabing lalawigan sa lalim ng espiritwalidad at isa ito sa dinarayo sa lalawigan. Ang hindi alam ng marami, bago pa dumating ang mga kastila ay may isang uwi ng awit na ginagamit na ng mga sinaunang Kapampangan, ang salese (pulosa). Isa itong uri ng awitin na ginagamit sa mga gawaing panlipunan ng mga Kapampangan, mula sa pag-ibig, pagtatanim, pagdadalamhati, katatawanan at pulitika. Sinikap ng mananaliksik sa papel na ito na uriin ang mga kinalap na pilosa batay sa panlipunang gamit nito sa lalawigan. Susuriin ang mga liriko ng mga piniling awit upang mapatunayang mahalagang sangkap ang mga ito ng kultural na pagkakailanlan ng lalawigan ng Pampanga. MEKENI, MALAUS KO PU!

Keywords: pulosa, panlipunang gamit, pulosa ng pag-ibig, pulosa ng pagtatanim ,pulosa ng pagdadalamhati, pulosa ng katatawanan, pulosa ng pulitika

POS-016

Classifying readability levels of Filipino storybooks using boosting-enhanced decision tree algorithms

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Abstract: This study describes the initial results of a work in progress in identifying the readability level of classic storybooks written in Filipino using computational machine learning algorithms. Identifying the proper reading level of children's literature will ensure its appropriateness for its intended audience. The storybook data used in this study were collected from a university library and were grouped into three categories according to their prescribed readability level by an expert. The categories were '*beginner*', '*intermediate*', and '*advanced*', and each category has 60 books, for a total of 180 storybook data comprising the initial study. Features are representations or characteristics of some data which needs to be extracted for machine learning algorithms to recognize pattern. In this study, text-based features of count vectors, term frequency-inverse document frequency (TF-IDF), and n-grams were extracted from the dataset. Data from each category were divided into two partitions, 80% for the training and the remaining 20% of the data for the test set. Two boosting-enhanced decision tree algorithms, Stochastic Gradient Descent (SGD) and Extreme Gradient Boosting (XGBoost), were trained with the training set to classify readability levels using the three text features extracted from the dataset. The boosting feature converts '*weak*' learners from the decision tree classifiers into '*strong*' learners by correcting misclassifications on the storybook data by its predecessor decision trees. The test set was used to leverage the performance of the trained models in terms of classifying readability levels. Results show that Extreme Gradient Boosting using count vectors as features performed the best of all models, with an accuracy rate of 0.731, followed by the same algorithm but using TF-IDF with an accuracy of 0.729. Performance of other boosting algorithms with textual features were also explored.

Keywords: readability, storybooks, gradient boosting, machine learning

POS-017

Dissecting the Intersectoral Reallocation Effects in Industry Labor Productivities in the Philippines: Are the Effects in the Right Direction?

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Abstract: Productivity was an important determinant to the growth story of the Philippines over the past few decades. In particular, its growth in labor productivity and the reallocation of labor has played a crucial role in the growth of the country. To sustain the growth in labor productivity and subsequently economic growth, it is of paramount importance to determine if labor is moving in the right direction or to sectors with higher productivity or higher labor productivity growth. This reallocation of labor is just as important a determinant as the within sector productivity in an economy. Hence, this paper aims to determine the factors affecting labor productivity growth and the implications of the intersectoral reallocation effect in order to effectively communicate policy implications of the reallocation of labor in the economy. The results seem to suggest contentious flows of labor in some sectors and in some years using the intersectoral reallocation effect as basis which may be a cause for the stifling of labor productivity growth and subsequently economic growth. As such, policy reforms catered on increasing labor productivity growth should take into account the proper movement of labor in the economy which may mean investing in developing industries or reallocating to industries with higher productivities.

Keywords: Labor Productivity; Sectoral Productivity; Generalized Exactly Additive

Decomposition; Intersectoral Reallocation Effects; Panel Data Econometrics

POS-018

Analysis of the Binding Interactions of Several Raltegravir Analogues as Potential HIV-1 Integrase Inhibitors via Molecular Docking

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Abstract: The prevalence of HIV or human immunodeficiency virus in the Philippines and globally continues to rise and currently, no total cure for HIV has been demonstrated. Proposed treatment are focused on reducing the effects of the virus and the rate of spreading to other individuals. This research deals with the evaluation of various HIV-1 integrase (IN) inhibitors, specifically raltegravir or MK-0518 analogues, to determine candidates that exhibit good interaction with the active site of IN – the enzyme in HIV-1 responsible for the insertion of viral DNA into the host cell. These analogues include elvitegravir or GS-9137, MK-2048, BMS-707035, dolutegravir or S/GSK 1349572, GSK 364735, cabotegravir or GSK 1265744, and bictegravir or GS-9883. The research was done through the application of computational methods through molecular docking using the AutoDock software. 3D structures of analogues used as ligands as well as the HIV-1 integrase enzyme (PDB ID: 1BL3) in the docking experiments were retrieved from PubChem and the RCSB Protein Data Bank, respectively. Aside from AutoDock, results were imported in other softwares such as Chimera and LigPlot to visualize the binding poses of the ligands. Results show that GSK364735 exhibit the best binding energy with IN followed by S/GSK-1349572 and GSK-1265744. The interaction of the analogues with the active was shown to have several H-bonds. Comparison with the experimental results confirm the similar trend in their IC50 values. This study showed potential inhibitors for HIV-1 integrase and the results of the docking of the raltegravir inhibitors with the active site demonstrated molecular insights into the design of future drugs for HIV-1 integrase.

Keywords: HIV-1 integrase; raltegravir analogues; molecular docking; AutoDock

POS-019

Correlation of Traffic Conditions with Pollutant Concentrations over Metro Manila using WRF-Chem v.4.0

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Abstract: Having financial, industrial, and commercial districts, Metro Manila is the most densely populated and the most urbanized region in the country. The annual average of PM2.5 is 70% more than the recommended safe level of the World Health Organization. With high costs of equipment for monitoring and limited vehicle emissions data, an air quality model using traffic and weather data is more fitting in the setting of Metro Manila. The Weather Research and Forecasting Model coupled with Chemistry (WRF/Chem) version 4.0 will be used in the simulation of pollutant concentrations. A sensitivity study will be

conducted for the different schemes and the most suited to the domain will be the input for the analysis. An automated vehicle classification system using roadside CCTV footages was developed by a DLSU-CCS team. Traffic data from this system will be mapped to the weather and pollutant data output from the WRF/Chem model. Correlating the vehicle count from the system with the pollutant and weather outputs of the WRF/Chem model would determine the contribution of the number of vehicles, which are mobile sources of air pollutants, to the air quality using a cost-effective technique.

Keywords: WRF/Chem, Metro Manila, Pollutant Concentrations, Traffic Conditions

POS-020

Moderating the Effect of Entrepreneurial Orientation on Firm Performance Through Entrepreneur Demographics: An Assessment by Concessionaires in Sidcor Sunday Market at Centris Walk

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Abstract: At present, flea markets and bazaars constitute an interesting economic phenomenon to be examined. This asserts the importance of the development of the global flea economy which has immensely benefited the growing informal sector. Entrepreneurial orientation (EO) is a firm's readiness towards accepting entrepreneurial practices, policies, and decision-making. EO has five dimensions - innovativeness, proactivity, risk-taking, autonomy and competitive aggressiveness. For this research, it is mainly focused on the tiangge or the flea market industry within the location of SIDCOR Sunday Market at Centris Walk. Moreover, this paper proposes a framework that connects the elements of EO with firm performance under the mediating variable, entrepreneurial demographics. An assessment of these factors may help the SIDCOR concessionaires and aspiring entrepreneurs in refining business practices that may, in turn, positively impact the performance of their firms especially in the tiangge industry.

Keywords: Entrepreneurship, Entrepreneurial Orientation, Firm Performance, SMEs

POS-021

Information Technology as Enabler in Strategic Human Resource Management. An Assessment of Effectiveness of E-Training and E-Learning, and its relevance to the Fourth Industrial Workspaces.

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Abstract: Information technology has been the forefront in advancement and changes in any industry, with its widespread effect in the almost all areas of the society. This led to the rise of diverse and non-standardized approached to employment, being without borders, and the increasing needs for adaptability to the changing landscape. People needs to be relevant, and the pressure for Human Resource Management to be strategic in its approach to handle the pressure of changes, and the shifts of the global economy, domestic diversity, reliance to technology as enabler to propel resources into new directions for the organizations. The increasing number and complexity in the workplace continues which resulted to the reliance on the capability of formal education and continuous trainings to educate the workforce provided the challenges for human resources to qualify to perform the complex processes and ensure retention of jobs in the fast-evolving working spaces.
In this research, information technology will be assessed on its usage as a tool to deliver training and manage learning of employees in the organization, and its effectivity. The

research aims to answer, does e-learning enhances the knowledge, skills, satisfaction, and judgement of employees suited in the fourth industrial workspaces.

Keywords: E-learning, E-Training, Knowledge Management, Fourth Industrial Workplace

POS-022

Utilization of Play-Based Activities in Teaching Math and Science in the Early Grades

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Abstract: Creative thinking, on the other hand, is the ability to generate new or improve existing ideas, experiences or objects (Saskatchewan Manual of Common Essential Learning). It is a novel way of seeing or doing things that is characterized by four components-fluency (generating many ideas), flexibility (shifting perspective easily), originality (conceiving of something new), and elaboration (building on other ideas). The study aimed to develop play-based activities in pre-schooling with contents addressing Basic Math and Science at Cielito Zamora Memorial School during Academic Year 2018-2019. Results T-computed value 6.67is greater than t-tabular value 9.20a t 5% level of significance with 29 degrees of freedom, the will hypothesis is rejected. There is significant difference between the pretest and posttest of the respondents with play-based activities incorporated with Math and Science skills. An Exemplary Module for Play-based Activities was crafted focused on the utilization of Computer Aided Instruction and open for replication.

Keywords: Play-based Activity; Early Grades, Math and Science

POS-023

Bayesian Prediction of Earthquake Occurrences in the Philippines

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Abstract: The Philippines, being located in the Pacific Ring of Fire, is susceptible to many earthquake occurrences and destructions. This study aims to predict the occurrence of earthquakes in the specific ranges of time using Bayesian change point analysis. Earthquake data from Philippine Institute of Volcanology and Seismology from April 18, 1907 to September 12, 2015 which includes the time, occurrences, and magnitude was obtained. Data was arranged chronologically and the highest magnitude of earthquake in a day was retained. Change point used is September 12, 2017. The derived equation in predicting the expected number of earthquakes is 0.024 times the number of days after the change point. Results include predictions of expected occurrences and magnitudes of earthquakes. It can be further concluded that at least one earthquake may occur within 30 days after the change point September 12, 2015.

Keywords: earthquake prediction, Bayesian change point analysis, Poisson process

POS-024

Dr. Espejo's Handiong: A Reflection of Bicolano's Culture and People

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Abstract: The Ibalon of Bicol is known for its epic heroes with extraordinary ability named as Baltog, Handiong, and Bantong. These

three portrayed a great role in freeing the Bicol Peninsula of beasts and monsters that caused a lot of turbulence in the province. These were given life through the creative mind of Dr. William Espejo, a Bicolano playwright who currently teaches at the University of Nueva Caceres, who wrote and staged a play "Handiong: A Dance Dramatization of a Warrior-Hero of the Epic Ibalon of the Bicolanos".
The "Handiong" ignited the interest of the researchers to evaluate the script of the play and explore the possible ideas of Dr. Espejo's intention of translating life of Handiong into a play. Moreover, this research reconnoiters Dr. Espejo's portrayal of Handiong through the script. Lastly, the value of the play shall be extracted from the script to understand how it mirrors Bicol's culture and people. The study shall conduct an interview with Dr. Espejo to capture his ideas in this play and the researchers will use a close reading of the script as a research methodology.

Keywords: Handiong, Culture, Ibalon, People, Reflection

POS-025

Folk Healing Ritual as Performance

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Abstract: Bicol Region is rich in cultural traditions, practices, vernacular literature, folklore and others but despite the series of exploration of scholars in the wealth that this region has, they still remain understudied. Among the cultural heritage of the region, one of the practices that the researcher find interesting in the region is folk healing. This practice continues to exist despite the medical developments and technological advancements.
Analysis of folk healing as ritual and as a performance was the main key points in the study and it problematizes the functions and the themes that folk healing ritual reveals in the lenses of performance study.
In gathering the data of the study, it employed an ethnographic approach using the unstructured interview from the folk healers in Naga city. It is a fascinating fact that in spite of the presence of several hospitals and clinics within the city, a lot of people (some are professionals) still resort to folk healing practice. Also, the transcribed narratives of the folk healers and patients were employed as the basis of the researcher analysis of his study.
Folk healing was found more than a practice and a tradition. The performance of folk healing has functions such as (1) to heal, (2) to teach or persuade, (3) to deal with the sacred and the demonic, and (4) to make and foster community. In the lenses of ritual being performed, it reveals different themes which are: (a) ritual as action, as performance, (b) rituals as liminal performances, (c) ritual time/space, and (d) transportation and transformation.

Keywords: Folk Healing, Ritual, Performance, Functions, Themes

POS-026

Effectiveness of Indigenized Learning Module for Grade II Ayta Pupils

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Abstract: The classroom action research focused on the Effectiveness of Indigenized Learning Module for Grade II Ayta pupils in Bueno Elementary School, Capas West District. The diverse group of learners in Bueno, Capas, Tarlac were mixed ethno linguistic group of Ayta Mag Antsi, Sambal Botolan, Ayta Abellen and Capampangan. The Indigenized Module in Improving Aytas' Number Sense used the indigenous language of Ayta Mag Antsi and Sambal Botolan because of dominant used of the language in Grade II. The implementation of Indigenized Module on Mathematics

conducted during the third quarter of the school year 2018-2019. The researcher used Purposive sampling method for non-probability sampling technique that was selected with the 36 Grade II IP learners. The one Group Pretest/ Posttest Design with Table of Specification were used in the study. The instrument used in the test is Kudder- Richardson Formula 20. Furthermore, the researcher used interview questions on learning experiences and observation notes. The scores subjected to test of difference or t-test in order to identify the significant difference of their scores supplemented by Shapiro-wilk test for normality. The Indigenized Module in Improving Ayta's Number Sense was effective. Findings revealed that the used of Indigenized Module improved the academic performance of the IP learners. In addition, they obtained higher mean in their posttest and delayed posttest compared to their pretest which lead to higher mean percentage score. Accepting the fact that innovative teaching approaches had a great influence in encouraging IP learners to perform better with the help of the culture bearer, the researcher was able to confirm that Indigenized Module was effective. Lastly, IP learners were active on the class especially when the culture bearer explains the lesson using the indigenous language while the IP learners who can't speak Ayta language were silent however the non-IP teacher explains the lesson using the language of Capampangan and Tagalog for them to understand.

Keywords: Indigenization, Module, IP learners, Culture bearer, Elders of the tribe

POS-027

Effects of Monetary Policy on Government Bond Yield

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Abstract: Accurate measurement on the effects of monetary policy on the yield of a government bond is important in many ways, one of which is that suboptimal policy choice of monetary authority may have distortionary effects on the risk premia of government bond and other credit instruments. In this paper, I look at the impact of monetary policy both on short term and long term government bond yield using small scale VAR model. The main finding is that monetary policy has a large effect on real long term yield than on real short term yield. However, the degree of persistence of the shock is on the same magnitude. The model exhibits "price puzzle" where inflation shock is being preceded by policy expansion instead of tightening. Finally, this challenge is being resolved by using BVAR instead of the standard VAR model.

Keywords: Yield, Price Puzzle, Inflation Premium, Taylor Rule

POS-028

Detection of Helmet Presence Among Motorcycle Riders Using YOLO

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Abstract: The number of motorcycle accidents that are being committed for the past few years are quite alarming. In order to enhance the safety measures, the detection of traffic rule violators is highly in demand but challenging task due to various constraints such as occlusion, illumination, poor video quality, etc. In this paper, we introduced an approach for automatic detection of motorcyclists without helmets in surveillance videos using YOLOv3. The performance of the proposed study is evaluated in two datasets, Motoryclists_dataset and Helmet_dataset. YOLOv3 was used in 2 different stages. At

the first stage, the researchers have trained a classifier for the detection of motorcyclists, it will capture and crop the detected motorcyclist in the surveillance video. The collected images will then be used as an input in the next stage which will be the detection of helmet. After the second stage, the motorcyclists with and without helmet are separately saved in different folders. The model was tested on videos and images resulted on a precision of 89%, a recall of 72% supported by an overall F1-Score of 80%, where we can conclude that the testing produced a positive result.

Keywords: Vehicle Detection; Helmet detection; Machine Learning; YOLOv3; Darknet

POS-029

Describing the Relationship Between e-Wallets and the Consumer's Intention to Use Them

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Abstract: The goal of this paper attempts to find the relationship between the perceived ease of use, perceived usefulness and the intention to use of mobile wallets in an icafe environment. The author wishes to determine if icafe users who perceive mobile wallets as easy to use and useful are more likely to use them while playing in an icafe. The theoretical framework used for this study was the TAM (Technology Acceptance Model). This study also uses the Ease of Use scales. The study was conducted by distributing a questionnaire to a sample of 100 patrons in a single icafe branch in Manila. At the moment, it is estimated that this icafe branch has about 1000 regular patrons. The results showed the following that potential users who perceive that e-wallets are easy to use perceive that e-wallets will be useful. Potential users who perceive that e-wallets are easy to use are more interested in e-wallets. Potential users who perceive that e-wallets are useful are more interested in e-wallets. Potential users who are interested in using e-wallets are more likely to say that they will be using e-wallets. Potential users who perceive that e-wallets are useful are more likely to say that they will be using e-wallets. There is no mediating effect between the perception that e-wallets are easy to use, the perception that e-wallets will be useful, and the interest in e-wallets. There is also no mediating effect between the perceived usefulness of mobile wallets, the interest in using e-wallets, and the intention to use e-wallets. There is also no mediating effect between the perceived ease of use of e-wallets, the interest in using e-wallets, and the intention to use e-wallets. Finally, there is no mediating effect between the perceived ease of use, the perceived usefulness and the intention to use e-wallets.

Keywords: e-wallet, Technology Acceptance Model, linear regression

POS-030

Review of Current Trends in Robotic Laparoscopy and Robotic Minimally Invasive Surgery

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Abstract: Laparoscopy, robotic surgery, and robotic invasive surgery revolutionized surgical procedures as it reduced the healing time of the body of a patient by significantly minimizing the abrasions, incisions, and punctures done to the patient during the surgical procedure. Robotic Systems today are overlooked due to its high cost and lack in force feedback. This paper showcases

latest trends and advancements in laparoscopy, robotic surgery, and RMIS.

Keywords: Laparoscopy, Robotic Surgery, Minimally invasive surgery, Wire drive mechanism, Forceps, Master–slave manipulator

POS-031

DLSU Senior High School Students' Stress Management Styles in Relation to Academic Performance

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Abstract: This is a qualitative study which explored the use of coping strategies among senior high school students in managing stress in relation to their academic performance. Qualitative data were collected using a fishbowl random and a non-probability sample. A total of 30 senior high school students enrolled in De La Salle University participated in the study by sharing narratives. A structural framework was adopted and data were analyzed using thematic analysis. Five types of stressors emerged from the data in which categorized as Academic and Non-academic, specifically administration/management, workload/academic requirements, customs/socio-cultural, environmental, and psychological/mental. The findings also indicated three leading stress coping strategies, namely problem-focused coping, appraisal-focused coping, and emotion-focused coping. The two types of reported outcomes from employing coping strategies included positive and negative aspects. An overall theme, entitled "adjust na lang" was integrated from the data and directs to a general term used to call the method of coping of participants in managing stressors. Upon further analysis, it was observed that both problem-focused and emotion-focused coping are the highly utilized mechanisms by the respondents of the study. Implications for the school administration, student affairs professionals, and scopes for further analysis are discussed.

Keywords: stress; academic stressors; non-academic stressors; coping strategies; student affairs, adolescents