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ICIASDFC



International Conference on
**Interdisciplinary Approaches to
Sustainable Designs of Future
Cities**

ICIASDFC-22



27th - 28th October

2022



**Jakarta,
Indonesia**

Organized by :

**Institute For Engineering Research and Publication (IFERP)
Indonesia Chapter**



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Editorial

We cordially invite you to attend the **International Conference on Interdisciplinary Approaches to Sustainable Designs of Future Cities (Bring in architects, Sociologists, Engineers, Anthropologists, policy makers) (ICIASDFC-22)** on **27th–28th October 2022**. The main objective of **ICIASDFC-22** is to provide a platform for researchers, students, academicians as well as industrial professionals from all over the world to present their research results and development activities in relevant fields of Bring in architects, Sociologists, Engineers, Anthropologists, policy makers, Computer Science. This conference will provide opportunities for the delegates to exchange new ideas and experience face to face, to establish business or research relationship and to find global partners for future collaboration.

These proceedings collect the up-to-date, comprehensive and worldwide state-of-art knowledge on cutting edge development of academia as well as industries. All accepted papers were subjected to strict peer-reviewing by a panel of expert referees. The papers have been selected for these proceedings because of their quality and the relevance to the conference. We hope these proceedings will not only provide the readers a broad overview of the latest research results but also will provide the readers a valuable summary and reference in these fields.

The conference is supported by many universities, research institutes and colleges. Many professors played an important role in the successful holding of the conference, so we would like to take this opportunity to express our sincere gratitude and highest respects to them. They have worked very hard in reviewing papers and making valuable suggestions for the authors to improve their work. We also would like to express our gratitude to the external reviewers, for providing extra help in there view process, and to the authors for contributing their research result to the conference.

Since June 2022, the Organizing Committees have received more than 200 manuscript papers, and the papers cover all the aspects in Applied Sciences, Engineering, Technology and Management. Finally, after review, about 50 papers were included to the proceedings of **ICIASDFC-22**.

We would like to extend our appreciation to all participants in the conference for their great contribution to the success of **ICIASDFC-22** We would like to thank the keynote and individual speakers and all participating authors for their hard work and time. We also sincerely appreciate the work by the technical program committee and all reviewers, whose contributions made this conference possible. We would like to extend our thanks to all the referees for their constructive comments on all papers; especially, we would like to thank to organizing committee for their hard work.



**“A Smart
City Would
Be Created
By Utilizing
Effective
Technology
And Efficient
Energy”**



Institute For Engineering Research and Publication

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Acknowledgement



Rudra Bhanu Satpathy

Founder & Chief Executive Officer

Institute For Engineering Research and Publication (IFERP)

IFERP is hosting the **International Conference on Interdisciplinary Approaches to Sustainable Designs of Future Cities (ICIASDFC -22)** this year in the month of October. The main objective of Interdisciplinary Approaches to Sustainable Designs of Future is to grant the amazing opportunity to learn about groundbreaking developments in modern industry, talk through difficult workplace scenarios with peers who experience the same pain points and experience enormous growth and development as a professional. There will be no shortage of continuous networking opportunities and informational sessions. The session will serve as an excellent opportunity to soak up information from widely respected experts. Connecting with fellow professionals and sharing the success stories of your firm is an excellent way to build relations and be known as a thoughtful leader.

I express my gratitude to all my colleagues, staffs, professors, reviewers and members of organizing committee for their hearty and dedicated support to make this conference successful.



Rudra Bhanu Satpathy



(+91) 44 - 4958 9038



info@iferp.in
www.iferp.in



Rais Tower, 2054/B, 2nd Floor, 'L' West Block, 2nd Ave, Anna Nagar, Chennai, Tamil Nadu 600040, India



International Conference on
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Keynote Speakers



“



Mr. Utpal Chakraborty

Chief Digital Officer,
Allied Digital Services Ltd.

Biography:

Utpal Chakraborty is an eminent data scientist, AI researcher, strategist and thought leader with more than two decades of industry experience, including as a principal architect in Larsen & Toubro (L&T) Infotech, IBM, Capgemini and other MNCs including heading the Artificial Intelligence division of YES Bank. Currently he is he is the Chief Digital Officer(CDO) at Allied Digital Services Ltd. Utpal is a well-known speaker and author on artificial intelligence, Quantum Computing, IoT, as well as Agile & Lean and has spoken at conferences around the world. Utpal has also been recognized as one among top AI Influencers & Thought Leaders by reputed forums. He has also been recognized as Global AI Ambassador 2022.



Dr. Himani Mittal

Associate Head of Department & Associate
Professor, Dept. of E&C Engineering, R.K.G.I.T,
Ghaziabad, India

Biography:

Dr Himani Mittal is an Associate Professor in the department of E&C engineering with more that 15 years of experience in the field of research, publications, academics. She has 9 patents published till date out of which three got grant, many research papers in journals of repute, written three books and guided projects for M.Tech and B.Tech level. She is editorial -in- chief of International journal NAVACAHR.



Dr F. Henry Abanda

Associate Professor
Construction IT,
Oxford Brookes University,UK

Biography:

Dr F. Henry Abanda is a Reader (Associate Professor) in the School of the Built Environment, Oxford Brookes University. He is a Chartered Engineer with the UK Institution of Engineering and Technology. Henry has obtained a number of qualifications in his academic career including: “Habilitation à Diriger des Recherches” (HDR) in Digital Construction Technology (Institut National Polytechnique de Toulouse, France), PhD, Construction IT (Oxford Brookes University, UK), PGCert [Distinction] (Oxford Brookes University, UK), MA in Monitoring & Evaluation (Africa Nazarene University, Kenya), Dipl. Ing., Civil Engineering (École Nationale Supérieure Polytechnique de Yaoundé, Cameroun), and BSc. (Hons), Mathematics/Physics (The University of Buea, Cameroon). His teaching and research interests are in Construction IT with focus on Building Information Modelling (BIM) and emerging digital technologies applied in construction practice. He has designed, implemented and delivered BIM related modules on the undergraduate and postgraduate courses in the School of the Built Environment. He is currently supervising a number of PhD students working on construction project management, BIM, Big Data, and the Semantic Web. He has worked on research projects funded by the Engineering & Physical Sciences Research Council, the International Labour Organisation and the Intergovernmental Panel on Climate Change. Henry has published over 100 peer-reviewed articles, book chapters, co-author a book and at least 5 peer-reviewed reports. Over the years Henry has facilitated a number of workshops. He facilitated a workshop attended by over 180 construction project managers and senior quantity surveyors in the use of BIM in managing construction project as part of the FutureFit Built Assets (European Union funded project) project between 2014-2016. He facilitated a capacity building workshop in the use of BIM in managing upgrading projects in informal settlements at the UN-Habitat III Conference in Quito, Ecuador, 17 – 20 October 2016. Lastly, Henry has developed and delivered BIM-based capacity building workshops to the Architectural Association of Kenya (1 day) , School of Planning and Architecture, New Delhi-India (10 days), École Nationale Supérieure de Travaux Publics, Yaoundé, Cameroon (3 days), Ecole Nationale d’Ingénieurs de Tarbes, Institut National Polytechnique de Toulouse-France (2 days), Universitat de Lleida, Spain (1 day).



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Informatics,
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Dr. Suhana Binti Koting
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Malaysia.



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NUEVA ECIJA UNIVERSITY OF
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Universiti Kuala Lumpur,
Product Design & Manufacturing,
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Romblon State University,
Civil Engineering Department,
Phillipine.



Dr. Ng Yin Hoe

Senior Lecturer,
Multimedia University,
Faculty of Engineering,
Malaysia.



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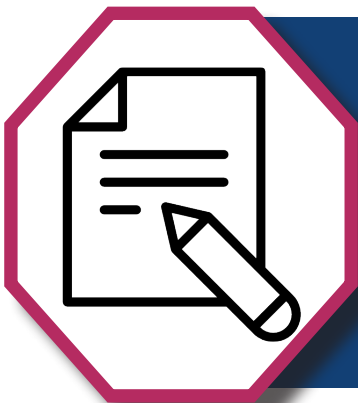
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Abstracts

Offline Learning Experiences: Stories of Challenges and Success in a Community College

Felina Gail V. Mar

professor of Baliwag Polytechnic College, Baliwag, Bulacan, Philippines

Dr. Rico Paulo G. Tolentino

professor of Baliwag Polytechnic College, Baliwag, Bulacan, Philippines

Melville Maniego

professor of Baliwag Polytechnic College, Baliwag, Bulacan, Philippines

Virgilia Concepcion

professor of Baliwag Polytechnic College, Baliwag, Bulacan, Philippines

Abstract

The present study examined the implementation of offline learning through modular and online asynchronous instruction at a local polytechnic college. The study employed a qualitative phenomenological design, which focused on the lived experiences of the faculty and students as they engaged in offline learning. Thematic analysis was used as the researchers drew upon interviews conducted virtually with the faculty and students of a local polytechnic college. Separate questionnaires were prepared for the faculty and students. Data analysis underwent two phases: first, through the independent analysis of each researcher, followed by comparative analysis of the findings.

The data gathered were categorized into four themes, namely institutional practices of the local polytechnic college, faculty and students' perceptions of learning delivery, significant stories, as well as challenges and issues faced by the faculty and students during the implementation of offline learning. Major similarities among the lived experiences of the interviewees and their recommendations for each category are reported. Two frameworks emerged based on the results of the study. These frameworks may be benchmarked and applied in future adoptions of offline learning, for both faculty and students. In addition, these may be studied further to develop a more effective and efficient implementation of offline learning.

Keywords

polytechnic college, modular instruction, asynchronous class

Performance of Senior High School in Physics Problem-solving using Blended Learning Strategies

Genaro M. Molina

Romblon National High School, Philippines, genmmolina@gmail.com

Ester L. Forlales

Romblon State University, Philippines, tingforlales@yahoo.com

Abstract

The problem-solving skills in physics of senior high school students in Romblon, Romblon, Philippines was assessed during the pandemic period. Assessment was done with blended learning strategies utilizing internet connection to access lesson materials for self-directed learning. Lessons covered were in kinematics and students were provided with assortment of printed or digital modules, powerpoint explainer videos and lectures in google meet. Participants were twenty-one (21) students from Romblon National High School for the school year 2021-2022 and were purposively selected in the quantitative experimental research. Their performances were determined using the validated and reliable test questions in physics based on WISE problem-solving strategy. Analyses of data used the following statistical tools: Percentage, Mean, Standard Deviation, Analysis of Variance (one way), Kruskal -Wallis H test, T-test of dependent samples, Wilcoxon W-test, and Hedge's g test. The study concluded the blended learning strategies used were effective in improving the problem-solving skills. The most notable were the use of digital modules, powerpoint explainer videos and messenger for communication and support to students. Easy access to learning materials manifested to students. Difficulties in derivation of a formula by transposing the variables in equation to derive a working formula for solving the unknown were observed.

Index Terms

Blended Learning Strategies, Problem Solving in Physics

Understanding the Day-Of-The-Week Effect on KSE-100 Index of Pakistan Stock Exchange: A Study Using Arch/Garch and Recent Data

Zafarullah Khan

Lincoln University College, zkhan_85@hotmail.com

Tapash Ranjan Saha

Lincoln University College

Sabiha Nuzhat

Curtin University, Dubai

Abstract

Aim/Purpose: The most famous index of Pakistan Stock Exchange formerly Karachi stock exchange is KSE 100-Index which comprised of top 100 companies. The purpose of this study is to determine if there is any effect of days of week on stock returns.

Background: This paper summarizes the past researches conducted on the days-of-the-week effect on Pakistan stock exchange and provide evidence on this matter.

Methodology: To carry on this research stock return has been calculated for the period Nov 1991 - June 2022 which comprises of total 7192 observations. To study the impact different statistical test like ANOVA, OLS, ARCH and GARCH has been used.

Contribution: The paper contributes to the body of knowledge in a way that it is the latest study performed for understanding DOW effect on KSE 100 index of Pakistan Stock Exchange and includes the data for the period Nov 1991 - June 2022

Findings: Results indicate that except Monday all the days have a significant effect on stock returns. In addition to that volatility pattern also exist in the data.

Recommendations

for Practitioners

The investors can take help of the findings before making the investment decision to maximize their profits.

Recommendations

for Researchers

The researchers and governments can use the findings to overcome DOW effect so that efficient market hypothesis remains functional and returns are not exploited.

Impact on Society

The government or the managing body of the Pakistan Stock Exchange should make some rules and laws so the investors or group of investor cannot exploit the stock returns.

Future ResearchIn future, research may be conducted on the other anomalies like months of years effects or seasonal anomalies like Ramadan effect and turn of the month effect.

Keywords

DOW effect, OLS, KSE-100 Index, ARCH, GARCH, Days of Week

The Impact of Open Data Implementation as part of National Data Governance Strategies on Entrepreneurial Sense in Europe and Central Asia.

Tosin Ekundayo

Lincoln University College, Malaysia

Abstract

Data governance is an emerging sub-sector of data specialization and an output of technological advancement. It encompasses a series of activities that ensure data quality within context of states and businesses, in pursuance of objectives. A common data governance technique is the concept of ‘Open data’. Open Data is the openness and accessibility of government in a state (Ubaldi, 2013). The same is applicable to businesses. Since the inception of Open Data as a data governance methodology at the Open Government Partnership Global Summit in Mexico in October 2015, over 150 nations and organizations have signed-on to its commitments. The goal is to tackle transparency and fight corruption. However, the impact of open data in transforming entrepreneurial sense has never been determined nor investigated (Corrales-Garay et al., 2020). According to Global Entrepreneurial Index (GEI) by the Global Entrepreneurship And Development Institute (GEDi), this is indicated by entrepreneurial attitude. It posits that, Entrepreneurial attitude is the generic sense of recognizing business/entrepreneurial opportunities and accepting the risk that is attached to its business start-up based on the skills of entrepreneurs within a country (Zoltan J. Acs, George Mason University, László Szerb, 2010). The United States argues that since its deployment of open data techniques, it has witnessed unprecedented increase in economic input via entrepreneurship yet Ekundayo (2021) posits that, the impact of Open data as economic performance varies (Ekundayo, 2021). Using regression analysis of secondary data on open data implementation from the Open Data Barometer (ODB) and Entrepreneurial Attitude index from GEI, this study investigates the impact of open data as a data governance strategy on entrepreneurial attitude in the Europe and Central Asia. The finding is significant for stakeholders, in developing data governance strategy and development of data governance policy in the Europe and Central Asia region.

Appraising Cost Control Methods, Tools and Techniques in Industry 4.0 era

Abdulrasheed Madugu Abdullahi

Department of Quantity Surveying, Universiti Teknologi Malaysia, 81310 Johor Bahru, Johor Malaysia

Department of Quantity Surveying, Ahmadu Bello University Zaria, Kaduna, Nigeria, madugu@graduate.utm.my

Sarajul Fikri Mohamed

Department of Quantity Surveying, Universiti Teknologi Malaysia, 81310 Johor Bahru, Johor Malaysia

Mohd Saidin Misnan

Department of Quantity Surveying, Universiti Teknologi Malaysia, 81310 Johor Bahru, Johor Malaysia

Fonbeyin Henry Abanda

School of the Built Environment, Oxford Brookes University

Abstract

Cost overruns have been a major source of concern to project clients and other project stakeholders for decades. The consequences of cost overruns include reduced guaranteed profits for the contractor and many more problems for all the parties involved ranging from allocative inefficiency of scarce resources, further delays, contractual disputes, claims and litigation to project failure or abandonment. To address these issues, it is necessary to establish effective cost control strategies to ensure projects are executed within budget. Several methods, techniques and tools have been proffered to aid construction cost control. Digitization, automation and the increased use of Information and Communications Technology (ICT) have fuelled the evolution of the fourth industrial revolution (Industry 4.0). The visionary idea of Industry 4.0 focuses on digitization of the value chain of a product and improving productivity through a variety of technologies and automated manufacturing environment. However, there is paucity of scholarly work about the role Industry 4.0 technologies in supporting cost control. This research aims to appraise the existing methods, tools, and techniques for construction cost control with a view to identifying a more robust approach that meets the 21st century challenges especially in the era of Industry 4.0. This will be achieved through a comprehensive literature review which will classify the findings according to three main themes: methods, tools, and techniques of cost control. This will inform how to improve cost control of projects in the era of Industry 4.0.

Combining the social wisdom with the industrial building system (IBS) for sustainable housing supply chain.

Ahmad Shuib Yahya

Faculty of Built Environment and Surveying, Malaysia

Asan Ali Golam Hassan

Azman Hashim International Business School, Malaysia

Mohd Hamdan Ahmad

Faculty of Built Environment and Surveying, Malaysia

Chan Wai Lai

Faculty of Built Environment and Surveying, Malaysia

Abstract

The benefits of Industrialised Building System (IBS) as a modern method of construction are numerous such as increase in quality and mass production, leading to a sustainable housing supply chain. However, when the subject of the interaction between technology and society are taken into account such as thinking in fairly grandiose terms in design process; major structure governs the living space creation, determination of space through modular coordination measurement and the most difficult things is how to integrate the social wisdom into the parameter space that has been determined by the modular structure. Previous case of Flat Pekeliling, Kuala Lumpur (1966-2014) proved that creating domestic space without social wisdom were problematic. Due to this concern, this paper, through a series of field study and design by research, suggested a three design examples as a foundation for further improvement. In other words, integrating awareness of social wisdom and the latest innovations in industrialized building systems are important to have sustainable housing supply chain for the future generations.

Keywords

Low income Housing, Social Architecture, Housing Supply Chain, Design by Research

Digital Literacy and Learning Styles of Selected Grade 11 Students of Mindanao State University Senior High School

Abdulmalik M. Manalao

University Instructor, Mindanao State University - Maguindanao
abdulmalikmanalao18@gmail.com

Abstract

The world in which today's children's lives is in fact different from that of the pasts. Today's generation, students use smart phones, tablets, laptops, instant messaging, Facebook, Instagram, and twitter to connect to friends, family, teachers, and others in their community and around the globe. They are now exposed with the term Digital Literacy. Regarding this issue, there were few studies conducted as to what aspects of digital literacy can effectively affect the learning styles of the students here in General Santos City. For this reason, this study aimed to determine if there is a significant relationship between digital literacy and the learning styles of the students. There were 200 respondents chosen randomly using Stratified random sampling from the five selected sections out of eleven sections of Grade 11 in Mindanao State University Senior High School. In the research process, the researcher used adapted and modified questionnaires and checklists, which were validated by a panel of experts. The findings of the study revealed that the level of digital literacy of the students is high ($x=4.20$). In addition, the dominant among the three learning styles of the students was the kinesthetic (4.07). Moreover, results showed there was a statistically significant relationship between the digital literacy and the learning styles of students. This indicates that increase in the usage of ICT tools tend to improve the attitude of students towards English subject. Results of this study may serve as basis for teachers on how to efficiently utilize ICT tools that support and enhance students' learning.

Keywords

Digital Literacy, Information Literacy, Computer Literacy, Media Literacy, Learning Styles, VAK Learning Styles, MSU Gensan, Senior High School.

Simultaneous Modeling Analysis of Poverty Panel Data in Jambi Province from 2011 to 2019

Zulgani

Faculty of Economics and Business, University of Jambi, Jambi, zulgani@unja.ac.id

Faradina Zevaya

Faculty of Economics and Business, University of Jambi, Jambi, zevayafaradina@unja.ac.id

Lalu Yuriade Mulana

Faculty of Economics and Business, University of Jambi, Jambi, lyamweb@gmail.com

Fadwa Rhogib Asfahani

Faculty of Economics and Business, University of Jambi, Jambi, fadwarhogib@gmail.com

Abstract

This study aims to determine and analyze the simultaneous modeling of panel data from the development of poverty levels in Jambi Province. Obtaining an economic model that is able to explain the effects and interrelationships thoroughly multidimensional (dimensions of education, health, employment) on the poverty level in Jambi Province. This study uses the Two Stage Least Square (2SLS) method with simultaneous equation analysis using panel data where the annual time series data is from 2011 to 2019 and cross section data in 11 regencies/cities in Jambi Province. The results of the analysis show that the estimated model parameters are in accordance with the theory. Variables that have a significant effect on poverty, average length of schooling, life expectancy, Gini ratio, open unemployment rate and economic growth in Jambi Province are population, population growth rate, GRDP per capita, capital expenditure, teacher-student ratio, number of infant deaths, tax revenues, household consumption, and exports. Investments in the dimensions of education and health have a positive impact on improving people's welfare with the largest change being in the poverty variable. On the other hand, optimizing local tax revenue has a significant impact on increasing local revenue which is also an alternative in improving the welfare of the people in Jambi Province.

Index Terms

Poverty Rate, Education Level, Health Level, Open Unemployment Rate, Simultaneous Equation of Panel Data.

The Role of Fungal-Based Biopesticides in the Fight against Global Warming

Surya Senthilkumar

Dr. Ambedkar International Centre (DAIC), Ministry of Social Justice and Empowerment, New Delhi, India.
drsrya@gmail.com

Abstract

Agricultural practices, including chemical pesticides, are responsible for around 30% of the worldwide emissions that contribute to climate change. Insect pests and weeds will invade the crops more often due to a longer growing season and a warmer environment, which will probably result in more chemical pesticide use, which in turn causes harmful emissions that worsen climate change in coming decades. Unlike traditional methods, pesticides made from natural components such as plants, animals, etc. are considered less harmful to the environment and can safeguard the ecosystem from the negative impacts of global warming. Widely used entomopathogenic environment-friendly fungi such as *Beauveria bassiana* and *Metarhizium anisopliae* have the ability to penetrate directly into pest cuticles to cause death. The fungus continues to grow from inside out of the carcass and disperse conidial spores to cause new infections to continue the cycle. Thus, the whole process protects the crops from pathogens without adding harmful gases to the environment. The present paper discusses the need for the use of fungal biopesticides as an alternative to chemical biopesticides with a focus on the impact on global warming and human health.

Index Terms

Fungal biopesticides, Global warming, Climate change, Food security.

Harnessing Wind Energy

Ar. Aishwarya Hatkar

Bharati Vidyapeeth Deemed University College of Architecture, Pune, India.

aishwaryahatkar1294@gmail.com

Abstract

Renewable energy plays a vital role into the lives of humans for them to thrive and survive. Harnessing them requires a lot of research, permutation and combinations, technological innovations, the right equipment's to convert it to usable source of energy. One such energy is wind energy; it is one source of energy that is available freely and in abundance.

The first practical windmills were used in Sistan, Persia in the mid-to-late 7th century. From then to now many new innovations and technological developments / advancements have happened which has led us to harnessing maximum wind and converting it to energy and using it to the optimum. From setting up windmill plants over open land to integrating them in the buildings we have come a long way.

Initially the windmills needed to be installed on the outskirts of any settlements due to factors such as: - noise of the turbine, open lands leading to unobstructed winds. But the negatives of windmill plants were that they occupied too much of land area; and with the increase in population the demand for lands is also increasing. Therefore, the integration of wind turbine in the skin of the structure in the urban context has proven to be beneficial and the parameters such as noise control is taken care of.

The following paper will cover the chronology of the wind mills in brief and skyscraper wind turbines in depth which will be supported with case studies. All of the following will be a second hand study but will prove to spread awareness about the "Wind Harnessing Technology", also open doors to new further research and innovations as we all are aware that currently the globe is in need for sustainable solutions.

The Local Climate Adapting Characteristics of Traditional Buildings in Indochina- Sustainable Designs from Vernacular Architecture

On Ngoc Yen Nhi

Faculty of Civil Engineering, Saigon Technology University, Ho Chi Minh City, Vietnam

Truong Thanh Hai

Institute of postgraduate education, University of Architecture Ho Chi Minh City, Ho Chi Minh City, Vietnam

Le Van Thuong

University of Architecture Ho Chi Minh City, Ho Chi Minh City, Vietnam

Abstract

At the beginning of the 21st century, sustainable development began and became the operating platform for all countries worldwide. Since then, sustainable architecture has also appeared with its characteristics and principles to minimize the impact of architectural activities on the natural environment, bringing significant benefits to society. However, the architecture problem for sustainable development has appeared for a long time, typically in three Indochina countries: Vietnam, Laos, and Cambodia. Before becoming a French colony and being enlightened, people relied on nature to build very comfortable residences without exploiting excessive energy to cause consequences such as the destruction of resources, ecological imbalance, and climate change. All of the above are handled wisely by the local people. This article aims to learn about the architectural solutions that the indigenous people use to help adapt to the local climate when they do not have the concept of energy sources, but that is the beginning of sustainable development architecture in Indochina.

Keywords

Sustainable, Indochina, traditional architecture, local climate, vernacular architecture, solutions.

Make Sustainable Green World By Using Renewable Energy

Arifa Parvin

Department of Electro medical Technology , Dhaka Mohila Polytechnic Institute (DMPI), Bangladesh

Adeeb Ahnaf

Department of Architecture, Bangladesh University of Engineering and Technology (BUET), Bangladesh

Abstract

Renewable energy is key to the solution of a safer, cleaner, and sustainable for green world. It comes from natural resources that are sufficient and continuously recharged. Renewable energy sources which are achievable in sufficient all around us, provided by the sun, wind, water, waste, and heat from the Earth are restored by nature and transmit no pollutants into the air. The study associated with renewable energy sources which includes with Energy Safety, Social and Economic Development, Environment Change, Reduction of Health Impacts of Sustainable for green world. Solar energy have got much cheaper renewable energy. Solar energy convert the sun's light into usable electric energy. But when operating solar energy do not produce air pollution. Solar energy technologies use the sun's energy and light to provide heat, light, hot water, electricity, and even cooling, for homes, businesses, and industry. At last electric vehicles are reduce to carbon footprint in their own way. The study suggested some recommendations which when considered would help achieve the goal of renewable energy thus to achieve and provide a clean environment as well as clean energy for all and future generations.

Keywords

Renewable, Energy, Sustainable, Green World, Future Generation.

The Effect of Pandemic on Shilpgram of Patna, Bihar

Dr. Richa Jagatramka

Manipal University Jaipur, Jaipur, India

Ar. Raunak Prasad

Manipal University Jaipur, Jaipur, India

Shreesh Thakur

Manipal University Jaipur, Jaipur, India

Abstract

Handicraft have always been a vital part of our rich culture incorporating various folklore, locally available raw material, it acts as source of income for a large population of landless and poor. Handicraft sector has seen multiple rise and downfall in market demand and needs through the years. The effect of the recent pandemic has led to a loss in the handicraft sector too. The handicraft development in the country was only significantly improving but the recent pandemic has created a larger gap between the crafts people and the market. The study is based on the effects of pandemic on the craftsmen in Shilpgram, with respect to the procurement of raw material, process, and generation of new designs. The methodology used for the study is based on indirect participative interviews and physical survey of the crafts and their designs available in the Shilpgram in Patna city. The study illustrates that the states like Bihar having a single craft centre in capital city Patna, which was completely shut since the lockdown is leading the craftsmen to discontinue the craft and look for alternative works. The conclusion also discusses various recommendations for the sustenance of the crafts and craftspeople.

Use of technology and development strategies in creating safe and smart city : A case of Lucknow

Ar. Divya Pandey

Faculty of Architecture and Planning, Dr. APJ Abdul kalam Technical University

Abstract

Smart city are the need of the hour because currently we are facing social and environment issue. It is also proved in current studies that very less focus is given in development strategies of city which help in creating safe environment in our urban hub. While creating strategies for smart city policy maker focuses on or their concern was on transport, governance, education, industry, energy and environment. Safety became a sideline in the development process.

The safe city concept includes mechanical surveillance, centrally managed policing, technology for crisis management. These all aspect and related technology focuses on the post event of the crime occurred at any place. Today, the need is to create development strategies and technology such that criminals avoid doing any crime in public space. The built form of cities and technology should be such that it prevent beforehand in occurrence of crime at public place. In this paper gap is identified and various ways to prevent crime at city level through the use of technology and city planning and designing is explained. At the end of the paper few development strategies and recommendation for creating safe and secure environment for the resident is formulated and elaborated in the paper.

Statistical Approach in the Determination of Causality Factors of Seismic Capacity of Reinforced Concrete Residential Buildings

John Anthony A. Liu

College of Engineering and Architecture, Mapúa Malayan Colleges Mindanao, Talomo, Davao 8000, Philippines, jaliu@mcm.edu.ph

Ralph Jason J. Centino

College of Engineering and Architecture, Mapúa Malayan Colleges Mindanao, Talomo, Davao 8000, Philippines, rjcentino@mcm.edu.ph

Alfred Anton M. Lima

College of Engineering and Architecture, Mapúa Malayan Colleges Mindanao, Talomo, Davao 8000, Philippines, aalima@mcm.edu.ph

Gernelyn T. Logrosa

Office for Research, Development, and Innovation, Mapúa Malayan Colleges Mindanao, Talomo, Davao 8000, gtlogrosa@mcm.edu.ph

Michael B. Baylon

Civil Engineering Department, College of Engineering, Polytechnic University of the Philippines, Sta. Mesa, Manila 1016, mbbaylon@pup.edu.ph

Abstract

Earthquakes are known destructive phenomena causing damages on buildings; yet their occurrence cannot be anticipated. Nevertheless, one could ensure that a building is resilient to earthquakes in terms of its seismic capacity. The traditional way of simulation to attain the building performance in various earthquake scenarios is inefficient and time-consuming especially when many structures need to be assessed. Hence, there is a need for an innovative process using a predictive model that could aid engineers in assessing structures faster and more efficiently. A critical step in developing this process is to identify the potential factors that affect the seismic capacity. Hence, preliminary data were collected through desktop review and interview followed by validity and reliability tests. As a result, one out of thirteen factors was rejected after the content validity test. Then, the pilot survey was conducted, yielding Cronbach's alpha of $\alpha=0.920$. Lastly, the actual survey was conducted which was immediately followed by Exploratory Factor analysis. With this, the analysis yielded initial and final Kaiser-Meyer-Olkin ($KMO=0.664$) and Bartlett's test ($p>0.05$), indicating that the factors were suitable resulting in four major factors: Structural Detail, Material Strength, Architectural Detail, and Distance from the Nearest Faultline. Therefore, this study demonstrated the effective generation of relevant factors to develop structural measures to reduce safety risks and enhance earthquake preparedness in residential areas.

Index Terms

seismic capacity, earthquake damage, exploratory factor analysis, causality factors

The Prediction of Influence Factors for Smoking Behavior of Private Vocational Students in Thonburi Side Bangkok

Wittaya Wisutruangdat

Faculty of Humanities and Social Science, Bansomdejchaopraya Rajabhat University

wit_wittaya@hotmail.com

Abstract

The purpose of this research was to study smoking behavior and prediction of influence factors for smoking behavior of private vocational students in Thonburi Side Bangkok. It was mixed methodology design. There were 2 steps: 1) Qualitative research: the key informants were selected by purposive sampling. The key informants were 20 persons together with teachers 5 persons, students who smoke 10 persons and friends of students who smoke 5 persons. Analyze data was the triangulation method. 2) Quantitative research: The samples were students who smoke 425 persons which were randomly selected by multistage random sampling. Analyze data were mean, standard deviation, coefficients, and stepwise multiple regression analysis. The results of the research found that 1) The smoking behavior of most students smoked less than 10 cigarettes per week. 2) Factors influencing the smoking behavior of students: 2.1) school (X1) 2.2) access to the source of purchasing cigarettes (X2), 2.3) family influence (X3) 2.4) cigarette graphic warning labels (X4) 2.5) support from friends who smoke (X5) 2.6) smoking attitudes (X6) and 2.7) Measures to prevent smoking in public places (X7). 3) the linear regression equation for predicting score of influence factors for smoking behavior of private vocational students in Thonburi side Bangkok was $Y = 2.19 - 0.27x_4 + 0.21x_3 - 0.20x_1 + 0.13x_2$ with standard deviation of 0.996 and adjusted coefficient of determination with the percentage of 12.30.

Index Terms

Prediction, Smoking Behavior, Private Vocational Students, Thonburi side, Bangkok

Analysis Factors of Group Tourists for Cultural Tourism in U Thong District Suphanburi Province

Wittaya Wisutruangdat

Faculty of Humanities and Social Science, Bansomdejchaopraya Rajabhat University
wit_wittaya@hotmail.com

Abstract

U thong district Suphanburi province has many outstanding potentials for tourism. But there are many factors responsible for its low popularity among the tourists. The purpose of this research had analyzed the affecting the decision of group tourists visiting U Thong District. This research used quantitative research, and the research tool was questionnaires. Collected data from 400 Thai tourists. Used data selection method by Purposive sampling. Analysis of Data by factor analysis. Results indicated that there are six factors that affect the decision-making of group tourists. 1) Identity of tourist attraction (I) 2) Service of staff (S) 3) Location of tourist attractions (Lo) 4) Physical of tourist attraction (P) 5) Prices for souvenirs and accommodation (P) and 6) Public relations for tourist attractions (Pr). It can be summarized as an abbreviation: IS Lo 3P. Suggestions of this study 1) local governments should formulate cultural tourism strategies for local communities. 2) tourism management communities should improve service quality to impress tourists; and 3) continually promote marketing strategies.

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Index Terms

Decision factors, Cultural tourism, U thong district

Analysis Factors of Individual Tourists for Cultural Tourism in U Thong District Suphanburi Province

Wittaya Wisutruangdat

Faculty of Humanities and Social Science, Bansomdejchaopraya Rajabhat University
wit_wittaya@hotmail.com

Abstract

The purpose of this research had analyzed the affecting the decision of individual tourists visiting U Thong District Suphanburi Province. This research used quantitative research, and the research tool was questionnaires. Collected data from 400 Thai tourists. Used data selection method by Purposive sampling. Analysis of Data by factor analysis. Results indicated that there are seven factors that affect the decision-making of individual tourists. 1) Service and Physical of tourist attractions 2) Public relations for tourist attractions 3) Price 4) convenience of traveling 5) Souvenirs 6) Accommodation in tourist attractions 7) History and reputation of tourist attractions. Suggestions of this study 1) People in the community should show good hosts in welcoming tourists. 2) People in the community should pay attention to cleanliness within the community 3) There should be more public relations for Cultural Tourism. and 4) Should study causal factors influencing individual tourism, U Thong District, Suphanburi Province.

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Index Terms

Individual Tourists, Cultural tourism, U Thong district

IoT-based *Pleurotus ostreatus* Cultivation Monitoring System

Mark Joren C. Guinto

Don Honorio Ventura State University, Bacolor, Philippines

Abstract

IoT – based *Pleurotus ostreatus* Cultivation Monitoring System serves as an automatic monitoring system for oyster mushroom fruiting. This system monitors and maintains the necessary environmental factors such as temperature and humidity, at the preferred level of the user, displays the time, current humidity and temperature levels through an LCD, waters the mushroom fruiting bags based on the set schedule, and provides an android application for the user to set watering schedules, sets the preferred humidity and temperature levels, views humidity and temperature logs, and gives notification on the system's activity. Developmental Quantitative research and Iterative Waterfall System Development Life Cycle were the methodologies used in this study. System Testing was conducted to ensure that the system works according to specification. Data gathered from the developed prototype was compared to the conventional mushroom cultivation method. Obtained results showed that the system is comparable to conventional mushroom cultivation in terms of environmental control and harvest yield. The system can maintain at least 60% humidity inside the farm. The temperature can be maintained below 30°C when the ambient temperature is below 35°C. The results of the system evaluation showed that the system is acceptable for its functionality, reliability, efficiency, usability, maintainability, and portability.

Reimagining Sustainable Future Works

Natrina Toyong

Universiti Teknologi MARA, Malaysia, natrinatoy@uitm.edu.my

Ahmad Azahari Mohd Nazar

Universiti Teknologi MARA, Malaysia, ahmad237@uitm.edu.my

Linda Abdul Hamid

Universiti Teknologi MARA, Malaysia, linda21@uitm.edu.my

Zakiyah Hasan

Universiti Teknologi MARA, Malaysia, zakiyahasan@uitm.edu.my

Abstract

This paper reports on the Scenario Planning of a Design Trend Study exercise. The research was conducted as a series of Design workshops participated by 40 novice Designers. Five teams consisting of eight members each are facilitated to identify key issues related to five important professions found in cities, namely teachers, police, nurses, firefighters and paramedics. The teams assess the stakeholders' journey to score on the significance and uncertainty of related trends. This qualitative inquiry is designed based on the theory of Designers' intuitive decision making and the Sense-Intent stage in the Design Thinking process. The result presented by each group is four extreme scenarios of possible futures, providing rich narrative of future jobs and the product and services related to it. The study does not only provide a promising method of forecasting future jobs but allow innovative idea generation for future goods and services that can bring about the desired social outcome of a city

Index Terms

Design Thinking, Scenario Planning, Design Trend Studies, Future Works

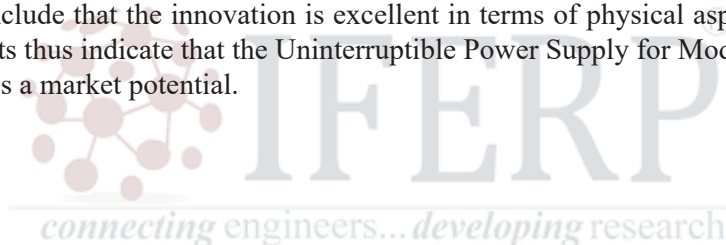
Uninterruptible Power Supply for Modems and Router

Mary Angeline G Opeña

Don Honorio Ventura State University, Bacolor, Philippines

Abstract

The study primarily aims to develop an uninterruptible power supply (UPS) intended for modems and routers to help users avoid disconnection to online activities during unexpected power outages. The study used an experimental research design to achieve its purpose of developing a new product. The primary instruments used to gather the needed data are survey questionnaires and interview. The questionnaires were validated by experts in the field to ensure their validity and reliability before they were personally administered by the researchers to the chosen respondents. Purposive sampling technique was used in selecting the students major in Electricity as well as the consumers who participated as respondents of the study. After the description and assessment of the developed product, results conclude that the innovation is excellent in terms of physical aspects, durability, battery life and functionality. Results thus indicate that the Uninterruptible Power Supply for Modems and Router is effective and useful which implies a market potential.



Assessment of the Accident-Prone Areas of Barangay Dolores Junction in City of San Fernando, Pampanga

Carmela P. Cervantes

Don Honorio Ventura State University, Bacolor, Philippines

Arjay C. Cortez

Don Honorio Ventura State University, Bacolor, Philippines

Celine Joy M. Cunanan

Don Honorio Ventura State University, Bacolor, Philippines

Joshelle M. Peralta

Don Honorio Ventura State University, Bacolor, Philippines

Catherine Mae A. Quizon

Don Honorio Ventura State University, Bacolor, Philippines

Yzza D. Suing

Don Honorio Ventura State University, Bacolor, Philippines

Gelyn O. Vizconde

Don Honorio Ventura State University, Bacolor, Philippines

Ariel G. Pabalate

Don Honorio Ventura State University, Bacolor, Philippines

Abstract

In today's world, road accident is one of the leading causes of injury-related deaths. As more people own vehicles for transportation, the number of people involved in road accidents continues to rise. The objective of this research is to assess the accident-prone areas of Barangay Dolores Junction in City of San Fernando, Pampanga, and to determine the most significant factors causing the road accidents. In this research, 31 factors were considered, and they were grouped into 3 categories: human factor, vehicle factor, and environmental factor. A survey questionnaire consisting of questions related to the said categories was given to 400 respondents. The Relative Importance Index was used to find the most significant factors of road accidents at the intersection. The results from the survey revealed that the most significant factors were all from the group environmental factor which were (1) illegal parking on the road (sidewalk, driveway, street, within a crosswalk, at or inside intersection), (2) lighting deficiencies on roads when it gets dark, (3) poor state of road pavement and maintenance, (4) inadequate design of road shoulders or sidewalks, and (5) unnecessary barriers on the road. To conclude, these findings will help the government and the road users to minimize and prevent the road accidents in Barangay Dolores Intersection.

Assessment of Hygiene and Sanitation Practices of an Indigenous Community in highlands of Floridablanca, Pampanga, Philippines

Neil Andrew D. De Dote

Don Honorio Ventura State University, Bacolor, Philippines

Randel Luis I. Pangan

Don Honorio Ventura State University, Bacolor, Philippines

Elmer Joshua E. Porras

Don Honorio Ventura State University, Bacolor, Philippines

Anna Jennvearly F. Ramos

Don Honorio Ventura State University, Bacolor, Philippines

Mikhaela L. Romero

Don Honorio Ventura State University, Bacolor, Philippines

Aldrin C. Santos

Don Honorio Ventura State University, Bacolor, Philippines

Jake Laurence D. Sarmiento

Don Honorio Ventura State University, Bacolor, Philippines

Inla Diana C. Salonga

Don Honorio Ventura State University, Bacolor, Philippines

Abstract

Water and sanitation are at the core of sustainable development and the range of services they provide underpin poverty reduction, economic growth, and environmental sustainability. This study aims to assess and evaluate the water sources and hygiene practices of the Aeta Community in Sitio Camachile, Nabuclod, Floridablanca, in the highlands of Pampanga of two hundred thirty two (232) households using qualitative and quantitative research design. In assessing their hygiene and sanitation practices, a validated structured questionnaire was used among the randomly chosen household heads. The future of hygiene and sanitation practices of the community was peeked through the perspective of the mentors of the Aeta students in Camachile Elementary School through qualitative analysis using a structured interview instrument. The Aeta Community has variety of water source, the challenge is both in physical and financial access to it. There has been improvement in the facilities, however further, improvement is needed. Furthermore, the knowledge to basic hygiene and sanitation is high, however, their actual practices show otherwise. There is a direct relationship between the hygiene and sanitation practices and water supply in the area due to changes in their practice and facility improvement. The hygiene and sanitation practices of the Aeta community are subjective due to their culture, environment, available facilities, and challenges brought by the rapid change in society. Collaborative initiatives among NGOs and the local municipality and openness of the community are the key factors in achieving sustainability in hygiene and sanitation in the area.

Partial Analysis on the Viability of the Intelligent Transportation System (ITS) in San Fernando, Pampanga through the Perspective of the Law Enforcers and Jeepney Drivers

Marivic P. Celso

Don Honorio Ventura State University, Bacolor, Philippines

Harvey C. De Leon

Don Honorio Ventura State University, Bacolor, Philippines

Michael Y. Lobarbio

Don Honorio Ventura State University, Bacolor, Philippines

Arnel Jr. M. Mananghaya

Don Honorio Ventura State University, Bacolor, Philippines

Ritz Paul G. Serrano

Don Honorio Ventura State University, Bacolor, Philippines

Lorenzo Raphael S. Velasquez

Don Honorio Ventura State University, Bacolor, Philippines

Miriam B. Villanueva

Don Honorio Ventura State University, Bacolor, Philippines

Abstract

Transportation engineering necessitates the management of the mode of transportation, which provides a safe, comfortable, convenient, economical, and environmental-friendly system for people and goods. Hence, the focus of interest of this study, titled “Partial Analysis on the Viability of the Intelligent Transportation System (ITS) in San Fernando, Pampanga through the Perspective of the Law Enforcers and Jeepney Drivers.” The researchers aimed to partially analyze the city’s viability from the viewpoint of law enforcers and jeepney drivers and determine the effects of traffic congestion and variables that affect the performance and efficiency of the current traffic management system. The study used a quasi-experimental research design, proving that independent and dependent variables have cause-and-effect connections. Eighty-one respondents (81) answered the survey questionnaire – 59 respondents from San-Agustin – San-Isidro – CSFP jeepney drivers and 22 from LTO-CSFP law enforcers. The research instruments used were survey questionnaires and structured interviews. The quantitative data were treated with the Relative Importance Index (RII), Percentage Frequency Distribution, Likert Scale, Range of Mean, and Pearson’s Correlation Coefficient. While qualitative data were transcribed, content examined, and classified. Accordingly, traffic congestion decelerated the flow of goods, increased travel time and fuel costs, and contributed to air pollution. The behavior of road users, the condition and characteristics of the road infrastructure, and existing vehicles are the elements that affect the production and efficiency of the current traffic management system of the city. Meanwhile, regarding the characteristics of ITS, jeepney drivers are also well-informed. The viewpoints of the law enforcers and jeepney drivers to ITS are distinct yet give different mastery. The first stage of this analysis is done, and future researchers are urged to incorporate public users to complete the three fundamental components of ITS and officially accomplish this study.

Keywords

Partial Analysis, Viability, Intelligent Transportation System (ITS), and Perspective

CALFER: Automated Calcium Fertilizer Maker using B.E.C. (Bone meal, Eggshell, Coconut water) Mixture

John Vincent B. Mendoza

Don Honorio Ventura State University, Bacolor, Philippines

Nicole Rose M. Villafania

Don Honorio Ventura State University, Bacolor, Philippines

Mark Joshua D. Beltran

Don Honorio Ventura State University, Bacolor, Philippines

Lester T. Almiron

Don Honorio Ventura State University, Bacolor, Philippines

John Paul R. Manio

Don Honorio Ventura State University, Bacolor, Philippines

Vanessa Joy R. Sampang

Don Honorio Ventura State University, Bacolor, Philippines

Simebert P. Tableza

Don Honorio Ventura State University, Bacolor, Philippines

Engr. Juvy N. Cruz

Don Honorio Ventura State University, Bacolor, Philippines

Abstract

The increasing rate of inflation to the commercial chemical fertilizer and the less re – usable and recyclable eggshells, bone meal and coconut water pushes the researchers to come with the idea of “CALFER: Automated Calcium Fertilizer Maker using B.E.C (Bone meal, eggshells and coconut water) Mixtures” that assist the farmers and residential users economically and support to help the environment. This digital machine converts and re-used the waste animal bone from leftover, eggshell and waste coconut water into organic fertilizer. The machine has heating processes that dry the components (Eggshell and bone meal) and has gridding process where shred the dry components from heating process, this proceeds the machine into packing section as last process that mix the coconut water with the dry shredded components. The researchers used iterative waterfall model as system development, Method to build and improve the proposed system by doing the step-by-step phase accordingly. The Machine was tested in terms of functionality, Reliability, Usability and efficiency. Professionals and Engineers from the Department of Agriculture of Pampanga found the Machine very functional, reliable, usable and efficient in producing organic fertilizer that able to help farmers and residential users economically and reduce environmental problems.

Analysis of Sand's Magnetite Content in Selected Places of Bacolor, Pampanga

Sophia P. Almadin

Don Honorio Ventura State University, Bacolor, Philippines

Fherdee I. Darnayla

Don Honorio Ventura State University, Bacolor, Philippines

Angela Rose D. Pare

Don Honorio Ventura State University, Bacolor, Philippines

Jomer Conrad C. Punzalan

Don Honorio Ventura State University, Bacolor, Philippines

Joshua C. Sumanqui

Don Honorio Ventura State University, Bacolor, Philippines

John Reinjoe F. Namit

Don Honorio Ventura State University, Bacolor, Philippines

Abstract

This academic paper analyzed the sand's magnetite content of Cabalantian, Cabambangan, Cabetican, Parulog, San Antonio, San Vicente, Santa Barbara, and Santa Ines in Bacolor, Pampanga. It aimed to analyze the percentage of sand's said mineral content in the eight places. Additionally, it sought to determine the relationship of the accumulated content to the erosion, flooding, business, and quarrying industry of the areas. Due to the objectives of the study, it utilized a sequential explanatory design to explain further and present both quantitative and qualitative data. In summary, Cabambangan has the highest percentage which is 27.5%. It is followed by Cabalantian with 19% and Sta. Ines with 15%. San Antonio with 6.5%, San Vicente with 5%, Parulog with 4%, Sta. Barbara with 2.5%, and Cabetican with 0.9%. Moreover, the evaluation portion of this research proved that there is a relationship between the acquired magnetite and the erosion, business, and quarrying industry of the stated barangays. Based on the final findings, the students discovered that geologists use different methods to know the magnetite content of an area. These techniques include utilizing a magnet with an observation of hues, a simple magnetic pen, magnetic surveys in geophysics, drilling, field mapping, and water panning.

Plantable Leaf Paper

Godfrey Miguel M. Aguas

Don Honorio Ventura State University, Lubao Campus, Philippines

Jennifer S. Lingad

Don Honorio Ventura State University, Lubao Campus, Philippines

Caryl M. Miguel

Don Honorio Ventura State University, Lubao Campus, Philippines

Abigael P. Orsino

Don Honorio Ventura State University, Lubao Campus, Philippines

Ana Patricia M. Pangan

Don Honorio Ventura State University, Lubao Campus, Philippines

Stephany M. Pineda

Don Honorio Ventura State University, Lubao Campus, Philippines

Isaac S. Ronquillo

Don Honorio Ventura State University, Lubao Campus, Philippines

Abstract

The feasibility paper aims to prove if the study “Plantable Leaf Paper” has the potential to enter the market and if the product proposed can benefit the users. Moreover, the study conducted by the proponents proves that it is feasible in the market. The type of Feasibility study that proponents have is business to business. The proponents conduct a survey to the retail owners that sell school supplies especially construction paper. Moreover, the chosen barangay are the Sta. Cruz, San Pablo and San Roque Dau Lubao Pampanga. The total respondents are 220. The tools that use by the proponents is survey questionnaire. The machine and equipment used to finish these products are the shredder, mixer, paper molding shape, dehydrator, and packaging machine. These machineries and equipment use to cut the paper waste into small pieces, mixed dry ingredients, to mold and shape the paper into many shapes and size, dry the paper from forming process and used to pack and seal the finish product. The proponents create this product to help the environment and to have an eco-friendly product that can be planted after utilizing. Moreover, the product has many colors that give aesthetic appeal to the customers. In this study the proponents produce product and prove that their study is feasible and it has potential to enter the market.

Instructional Materials Preparation of Elementary Teachers in the New Normal: Basis for Capacity Training for Enhanced Educational Tools

Catherine B. Liwanag

Don Honorio Ventura State University, Philippines

Camerine B. Montemayor

Don Honorio Ventura State University, Philippines

Anika L. Estalani

Don Honorio Ventura State University, Philippines

Vanessa P. Pangan

Don Honorio Ventura State University, Philippines

Noemi Jane B. Abdon

Don Honorio Ventura State University, Philippines

April S. David

Don Honorio Ventura State University, Philippines

Stephanie Rose T. Jimenez

Don Honorio Ventura State University, Philippines

Editha B. Quiboloy

Don Honorio Ventura State University, Philippines

Abstract

In education, there is a surge of continuous innovation and development. Due to the pandemic, a lot of things changed, particularly the modality of education. This study aimed to determine the preparation of public elementary teachers for the new normal. This qualitative descriptive study utilizes purposive sampling in the selection of public elementary teachers as participants. The researcher's-made questionnaire was validated by four experts in the field of education and distributed to the selected participants in the study. Responses from the researchers were gathered by conducting an interview. The researchers' findings in the preparation of the participants' instructional materials in the new normal are described in terms of understanding the student needs, educational resources, and learner's ability level. Moreover, the findings revealed that there are challenges that the participants encountered in their preparation, and these are financial support, technical support, and insufficient materials to meet learners' needs. This study found that in the preparation of instructional materials for elementary teachers, there are lots of things that need to be done, and some of these things are materials to be used, references, support, and workshops that enhance their skills, particularly in technology.

Imbak Dagitab: Rainwater Harvesting and Storage Exploration as an Alternative Energy Source for Emergency Use

Rain Isabella Cortez

Don Honorio Ventura State University, Bacolor, Philippines

Kelvin G. Flores

Don Honorio Ventura State University, Bacolor, Philippines

Paul John Tulabut

Don Honorio Ventura State University, Bacolor, Philippines

Michael John N. Villanueva

Don Honorio Ventura State University, Bacolor, Philippines

Gian Carlo B. Yaya

Don Honorio Ventura State University, Bacolor, Philippines

Inla Diana C. Salonga

Don Honorio Ventura State University, Bacolor, Philippines



Abstract

Natural disasters have always been one of the major problems that the world faces on a daily basis. One of which is the incessant and overwhelming destruction that typhoons bring. In the Philippines, strong wind and heavy rain are always expected when the third quarter of the year approaches. Power outage is one of the most common outcomes that the devastation brings; a problem that never failed to inconvenience and incapacitate the people. One of the affected areas during this season is the province of Pampanga. Furthermore, major providers of electricity in the area often lead to power disruption because the transmission lines are vulnerable to the relentless onslaught of rain. Hence, a prototype that can provide emergency power source was proposed. By utilizing rainwater through harvesting and maximizing its potential, it will serve as an alternative energy source. Through a series of trials to determine the compatibility of the components of the prototype with each other, the final design was constructed. A final series of trials with a set of items will determine the sufficiency and usefulness of the prototype. In accordance with this, commonly used emergency items were tested to assess the performance of the prototype. The study showed that the final constructed prototype was insufficient when it comes to storing charge, but is able to produce a continuous flow of current enough to power up a 12-volt LED light. Possible alterations to improve current prototype was also discussed in this study.

Results-Based Management as a Framework in Building and Maintaining Public Trust towards the Achievement of a City's Development Goals: The Case of the City Government of San Fernando, Pampanga

Julius Miano Velasco, M.M.

Don Honorio Ventura State University, Bacolor, Pampanga

Abstract

Improving the bureaucracy's level of productivity in achieving intended results for national, as well as global development, is an important factor in building and maintaining public trust. Different performance challenges are usually encountered in public management such as the difficulty in cascading development goals, as well as the monitoring and reporting of accomplishments by diverse government agencies. Based on international business practices like Management by Objectives (MBO) and Balanced Scorecard, the implementation of Results-Based Management (RBM) in the Philippines has helped in developing a trustworthy and reliable bureaucracy by being efficient, effective and productive in delivering services to its citizens. The purpose of this paper is to tackle how the principles of RBM are put into practice in an actual government setting in the Philippines with the local government unit (LGU) of the City of San Fernando, Pampanga (CSFP) as a case study. A Narrative type of Qualitative Research was conducted through interview and archival analysis. Historical analysis was incorporated based on facts presented. The findings show that RBM led to the city's improved way of governance in aligning programs and activities to the vision and strategy of the city government, improving internal and external communications, and monitoring organization performance against strategic goals. In the end, strategic lessons are derived as recommendations from this study. These are applicable on how long-term development goals need to be implemented, such as the AmBisyon 2040 and the United Nations' Sustainable Development Goals 2030 (SDG 2030).

Key Words

Social Science, Results-Based Management, Bureaucracy, National and Global Development, Public Trust

A Market Research on Introducing Drinking Straw Made of Dried Mango Leaves in the City of San Fernando, Pampanga

Julius M. Velasco

Department of Industrial Engineering, Don Honorio Ventura State University, Cabambangan, Bacolor, Pampanga 2001Philippines, jmvelasco@up.edu.ph

Abstract

Drinking straws have been almost a staple commodity and a hygiene tool to customers buying drinks and beverages from expensive iced coffee sold in coffee shops down to bottled soft drinks sold in retail stores. As for the continuous usage of plastic drinking straws, so is the continuous generation of solid waste. Furthermore, petroleum is needed for the production of plastic drinking straws, hence another cause of air pollution. The paper tackles the possibility of introducing in the market, a drinking straw made of dried mango leaves. Dried Mango leaves are another solid waste being discarded on a regular basis in many places in the Philippines. Thus, lessening the combustion of the said leaves would decrease the worsening greenhouse effect. To ensure the sustainability of the utilization of this innovative product, a market study is conducted. The different micro, small and medium enterprises where consumers buy drinking straws in the City of San Fernando, Pampanga were surveyed as target market. A demand-supply gap analysis is presented which in the end, leads to the conclusion of the projected number of unsatisfied customers from existing consumers of drinking straw made of plastic.

Index Terms

Solid waste management; Green Engineering; Innovative Drinking Straw; Market Research; Philippines

An Administrative Evaluation of the Free Higher Education in the Philippines in Promoting Equity in Education: The Case of Don Honorio Ventura State University

Julius Miano Velasco, M.M.

Don Honorio Ventura State University Bacolor, Pampanga

Abstract

Quality education at all levels is one of the foundations of sustainable development. Last August 3, 2017, the Republic Act 10931 also known as the Universal Access to Quality Tertiary Education was enacted. It is anchored on the government's priority thrust of poverty alleviation and is aimed at providing all Filipinos with equal opportunity to quality tertiary education. Prior to its enactment, President Rodrigo Duterte's administration had already implemented an initial run of providing 'universal' access to tertiary education referred to as the '2017 Free Tuition Policy in State Universities and Colleges.' The purpose of this paper is to assess how this policy had been carried out administratively. A Qualitative Research was conducted which assessed the administrative efficiency, effectiveness, and equity of its implementation. Don Honorio Ventura State University (DHVSU), a state university in Pampanga mandated to provide advanced instruction and professional training in education, engineering, science and technology, arts and humanities, computer and other relevant fields of study, was used as a case study. The findings show that the provisions of the policy are administratively feasible despite the challenges encountered. A conclusion of the different lessons of DHVSU's implementation of the policy is presented, thereby, recommending different administrative policies that can be considered to ensure the successful implementation of universal access to quality tertiary education in the Philippines.

Key Words

Public Administration, Social Equity, Universal Education, Qualitative Research, Philippines

Portrait of Outstanding Alumni: Basis for Career Guidance Program

Criselda G. Nicdao

Don Honorio Ventura State University, Bacolor, Philippines

Alberto G. Gamboa

Don Honorio Ventura State University, Bacolor, Philippines

Jerame N. Gamboa

Don Honorio Ventura State University, Bacolor, Philippines

Plato B. Mercado

Don Honorio Ventura State University, Bacolor, Philippines

Joan N. Puebla

Don Honorio Ventura State University, Bacolor, Philippines

Abstract

The study aims to describe how the graduates from a state university and college in Region III, Philippines excels in their chosen careers. Specifically, it sought to find the contributory factors to be outstanding in chosen field; what are challenges and success that the alumni experienced as students and employees; and how do the alumni engage with the community. The study used descriptive phenomenology. In choosing the participants, purposive sampling was utilized. From the set criteria in choosing the participants, 11 were identified. The study used open-ended questionnaire. It was found out that to be outstanding, trainings, learnings, and values are necessary; however, challenges will be there like of low self-esteem, poverty, losing a loved one, expectations and self-doubt. But the fruits of it is sweeter, such as winning, passing and top notching licensure examinations, receiving awards/recognitions, being promoted, and owning a business. But being outstanding must be shared by doing volunteer works to the community, helping the poor, and inspiring others. Based on the findings of the study, inclusion of being employable and being serviceable in the career guidance program is suggested.

Emergency Notification System using Long Range (LoRa) Technology for the Residents of Barangay Consuelo, Floridablanca, Pampanga

Enmar T. Tuazon

Don Honorio Ventura State University, Bacolor, Philippines

Rochelle D. Alfonso

Don Honorio Ventura State University, Bacolor, Philippines

Dale Ashley S. Guevarra

Don Honorio Ventura State University, Bacolor, Philippines

Alyanna Liz G. Pusung

Don Honorio Ventura State University, Bacolor, Philippines

Eric Alejandrei C. Santos

Don Honorio Ventura State University, Bacolor, Philippines

Vanessa C. Solares

Don Honorio Ventura State University, Bacolor, Philippines

Exzekiel M. Torno

Don Honorio Ventura State University, Bacolor, Philippines

Abstract

It is a well-established fact that time is of utmost importance when it comes to emergency situations, since people's lives and well-being are always at stake, and it all possibly ends if not handled swiftly. Communication allows the effective conveyance of emergency messages, which could help relevant authorities to acknowledge and respond to it, and ensure team cooperation for faster mitigation of an emergency. With that being said, there are still some factors which could impede that communication. This study aims to explore these prevalent factors and develop an emergency notification system using LoRa (Long Range) technology that can be utilized to convey emergency notifications to different departments, namely; the police, fire department, and medical facilities such as hospitals. This system will be implemented in Barangay Consuelo, Floridablanca, Pampanga. An online survey was conducted for the residents of the mentioned locale. The results suggested that the majority of the residents do not have the contact numbers of the said departments, leaving them unable to communicate with them when an emergency situation arises. There are also other factors, such as that most of the time, the residents do not have cellular load, which is vital in order to send SMS and start phone calls. The time consumed to make these SMS and establish calls is also an issue. The developed system can eliminate the mentioned issues since it does not rely on cellular networks for sending and will not consume as much time in sending an emergency notification as it is as simple as pressing a button. The system underwent multiple time trials at different chosen distances and times of the day, in which it provided a faster average time response compared to the traditional way of using SMS and phone calls.

Microcontroller-Based Aquaponics System with Android-Typed Monitoring Application

Jennifer Elizabeth Y. Buenviaje

Don Honorio Ventura State University, Bacolor, Pampanga, Philippines

Odhiellon P. Baltazar

Don Honorio Ventura State University, Bacolor, Pampanga, Philippines

John Derrick J. Cordova

Don Honorio Ventura State University, Bacolor, Pampanga, Philippines

Loren Joyce V. Due

Don Honorio Ventura State University, Bacolor, Pampanga, Philippines

Chantal G. Garcia

Don Honorio Ventura State University, Bacolor, Pampanga, Philippines

John Joshua A. Guinto

Don Honorio Ventura State University, Bacolor, Pampanga, Philippines

Kristel Faye Z. Yumul

Don Honorio Ventura State University, Bacolor, Pampanga, Philippines

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Abstract

This study aimed to develop a microcontroller-based aquaponics system with an Android monitoring application for Bok choy and Nile tilapia. The study utilized the microcontroller-based aquaponics system and a conventional aquaponics system to assess the effectiveness of the developed prototype. The controlled and uncontrolled aquaponics systems used to collect data were not soil-reliant. The results showed that the developed controlled aquaponics system sensor and relay devices achieved accuracy rates of at least 90%. The NodeMCU transmission achieved a 100% acceptance value indicating that a connection has been established that allows data to be sent to the Android monitoring application. The microcontroller-based aquaponics system also had regulated pH compared to an uncontrolled single-stage filter system. The automatic feeder's response to the predetermined feeding time was 100% accurate. When comparing the controlled and uncontrolled systems, it was discovered that the controlled system produced more Bok choy leaf count, Bok choy weight, tilapia weight, and tilapia length. Based on the one-tailed t-test, it was also found that the microcontroller-based aquaponics system had a significant difference compared to the conventional aquaponics system in terms of the number of leaves, weight of Bok choy, weight of Nile tilapia, and length of Nile tilapia.

Quality Assurance, Safety and Health Assessment Tool, and Evaluation of the Necessary Parameters for Irrigation Projects in the Philippines

Eddiebal P. Layco

Don Honorio Ventura State University, Bacolor, Philippines

Russel Renz C. de Mesa

Don Honorio Ventura State University, Bacolor, Philippines

Jaypee B. Pajarillaga

Don Honorio Ventura State University, Bacolor, Philippines

Aldrin D. Parico

Don Honorio Ventura State University, Bacolor, Philippines

Abstract

Irrigation is a useful crop-production method in developing countries, where water is scarce. The present study generally aims to formulate a Quality Assurance, Safety, and Health Assessment Tool and evaluate the necessary parameters for irrigation projects. The study focused on irrigation projects in the province of Pampanga. At least 100 respondents were targeted, including project engineers, farmers, and IAs. Engineers who are currently or have previously worked on irrigation projects for NIA were specifically chosen. Farmers and IAs in the Municipality of Florida Blanca who have directly benefited from NIA irrigation projects were also chosen as respondents. Based on the summary of findings, the study concludes that the newly developed assessment tool for irrigation projects is very useful and user-friendly as validated by the experts. The survey participants which comprised of engineers, farmers, and IAs assessed the tool using different metrics or criteria and they strongly agreed that these parameters are really needed and important. Project management, quality of work, and construction safety implementation as parameters of quality assurance for irrigation projects are also included in the developed assessment tool. These findings were also supported by the positive viewpoints and feedback from the experts during focus group discussions.

Arduino Based Electronic Cash Loading with Monitoring System for Bulaon Resettlement E-Trike (E-TODA) Incorporated Terminal

Anthony S. Tolentino

Don Honorio Ventura State University, Bacolor, Philippines

Jun P. Flores

Don Honorio Ventura State University, Bacolor, Philippines

Alma L. Tanguangco

Don Honorio Ventura State University, Bacolor, Philippines

Abstract

The design of a battery charging station of the Electronic Tricycle association of the Bulaon Resettlement provides the members of the organization to charge the batteries of their electronic tricycles which requires access only by the members of the organization. It provides safety as well as proper authorization for the usage of the charging system of the E-trike Charging Station intended for the members of the E-trike Association. A security system is required for the data privacy of the members as well as the safekeeping of the charging station. The system aims to provide a monitoring and data logging system for the membership and usage of an E-Trike. Each member and driver are given an identification card which uses radio frequency (RFID) to address the problem of the monitoring the charging system of the E-Trike Association. A Database Management System is used to ensure its safety and added e-cash loading system in order to maintain its sustainability. Data has been kept in process using data logger and regularly checked the usability of the system by the members of the organization.

Implementation Policy during Covid-19

Rita Rahmawati

Master of Public Administration, Universitas Djuanda, Indonesia, rita.rahmawati@unida.ac.id

Maman Diana

Master of Public Administration, Universitas Djuanda, Indonesia

Berliana Karta Kusuma

Master of Public Administration, Universitas Djuanda, Indonesia

Berry Sastrawan

Public Administration, Universitas Djuanda, Indonesia

Abstract

The mobility restriction policy during the COVID-19 pandemic caused schools to be closed, and education units were required to implement a learning-from-home education policy. This study aims to analyze the implementation of secondary education policies during the COVID-19 pandemic. The research method used is the Mix Method. This method combines quantitative and qualitative approaches. A qualitative approach is used to map the factor's influence, while a quantitative approach is used to analyze the implementation of secondary education policies during the pandemic. Data was collected using interviews, FGDs, and distributing questionnaires. Data analysis was carried out descriptively, both descriptive qualitative and descriptive quantitative. The study results indicate that the policy of learning-from-home education has not been appropriately implemented. It happens because some people still do not understand the policy and the factors that influence it. These factors are planning, school management, application mastery, facilities and infrastructure, student learning motivation, teacher commitment, student learning facilities, and learning methods.

Keyword

Learning From Home

A Structural Analysis on Perception of Individual Investors and Investment Decision Making Behavior

C. Hariharan

Department of Management Studies, Nehru Institute of Technology, Coimbatore, Tamil Nadu, India
harisraj7791@gmail.com

N. Subha

Department of Management Studies, Nehru Institute of Technology, Coimbatore, Tamil Nadu, India
harisraj7791@gmail.com

Dr. S. Naganandini

Department of Management Studies, Nehru Institute of Technology, Coimbatore, Tamil Nadu, India
harisraj7791@gmail.com

B. Thirumoorthi

Department of Management Studies, Nehru Institute of Technology, Coimbatore, Tamil Nadu, India
harisraj7791@gmail.com

K. Tamilarasi

Department of Management Studies, Nehru Institute of Technology, Coimbatore, Tamil Nadu, India,
harisraj7791@gmail.com

 *connecting engineers... developing research*

Abstract

In recent years of the Indian economy, many financial instruments have been introduced by financial institutions as well as the Indian Government, with the goal of improving the saving or investing behaviour of the Indian people toward various financial assets. Thus, the current study intends to evaluate the impact of socioeconomic constraints, information sources, awareness level, and risk perception on Indian individuals' investment decision making behaviour, as well as to identify their preferred investment avenues. Primary data were collected from 105 respondents, through the use of a structured questionnaire. Using Structural Equation Model (SEM), the Study found that all the selected factors, namely, socio economic constraints, sources of information and awareness level did influence the Indian individuals' investment decision making behavior. The study also found that majority of them preferred risk less investment avenues like Gold, Bank, Post Office, Insurance.

Keywords

Awareness level, Investment decision, Risk perception, Socio economic constrains and Sources of information.

Road Re-Routing System Framework using Adaptive Systems for Mt. Mayon Danger Zones in Albay

Vince Angelo E. Naz

Bicol University

Dr. Thelma D. Palaoag

University of the Cordilleras

Guillermo Jr. V. Red

Bicol University

Abstract

Mt. Mayon being an active volcano has histories in causing devastation and volcanic hazards in the roads of the province. This led to the indications of danger zones and areas of the province that varies on how close the area is on the volcano. These areas are towns and cities that are inter connect with numerous roads and highways to provide vehicular transportation. However, with the recent active activity of the volcano, vehicles travelling in the 6km danger zones are at risk in the dangers of volcanic hazards that can occur in the roads. The research aims to create a road rerouting system framework in assessing alternative routes in areas within the danger zone and the integration of adaptive systems for the framework to find the fastest and capable routes that depends on the capability and status of the vehicle. The development of the framework identified the map data of the danger zones, routes and the type of vehicles that are common for traveling. Mapping data roads is given by the integration of the google mapping API to provide the road routes. The framework used the model-view controller architecture and the adaptive system concept to create the model to evaluate and learn vehicle status and capability in identifying the best route for the vehicle to travel safely avoiding away from the danger zones in the Albay province. The designed framework presents a viable concept in assessing the best routes in safely traveling through danger zones while avoiding volcanic hazardous roads.

Effect of Magnetised water on chloride ions in Trickle Irrigation

Gulja S Nair

Assistant Professor, Department of Agricultural Engineering, Nehru Institute of Technology, Coimbatore

Bharathikanna R

Assistant Professor, Department of Agricultural Engineering, Nehru Institute of Technology, Coimbatore

Dr. Sushil Kumar Bansude

Agricultural Engineering, AICRP On Irrigation Water Management, Odisha University Of Agriculture and Technology, Bhubaneswar.

Dr. Nisha R

Assistant Professor, Department of Agricultural Engineering, Nehru Institute of Technology, Coimbatore

Dr. Jyothi Narayanan

Assistant Professor, Department of Agricultural Engineering, Nehru Institute of Technology, Coimbatore

Abstract

Magnetic fields are known to induce biochemical changes and could be used as a stimulator for growth related reactions, to enhance growth, chemical constituents and productivity of crops. The method of magneto-hydro dynamical activity of natural water is an essential part in the whole complex of using magnetic fields in agriculture. It includes physical- chemical changes of natural water parameters, resulting in improvement of filtration properties and in an increase of dissolving properties of water. These changes result in an increased ability of soil to get rid of salts and results in a better assimilation of nutrients and fertilizer in plants during the vegetation period. Water treated by magnetic field or passed through a magnetic device is called magnetic water. The study examines the effect of magnetic treatment of different irrigation water types on growth and yield of Amaranthus. Replicated pot experiments using magnetically treated and normal tap water and saline water (EC=1mmhos/cm, 2mmhos/cm and 3mmhos/cm) were conducted under controlled environmental conditions. A magnetic treatment device with magnetic field of intensity 0.9360T was used for the magnetic treatment of irrigation water. The analysis of data collected from the study revealed that the effect of magnetic treatment varied with the type of irrigation water used and there was a statistically significant increase in plant yield with magnetised irrigation water.

Keywords

Magnetised water, Chloride ions, Trickle irrigation

Clogging Effects of Drip Emitter with Fresh Water and Muddy Water

Anitha Krishnan V.C

Assistant Professor, Department of Agricultural Engineering, Nehru Institute of Technology, Coimbatore

Srinivasan S

Assistant Professor, Department of Agricultural Engineering, Nehru Institute of Technology, Coimbatore

Sruthi Rajan

Assistant Professor, Department of Food Technology, Saintgits College of Engineering, Kottayam, Kerala.

Pooran Pragnya

Assistant Professor, Department of Agricultural Engineering, Nehru Institute of Technology, Coimbatore

Ashutosh C Kakde

Assistant Professor, Department of Agricultural Engineering, Nehru Institute of Technology, Coimbatore,

Abstract

Emitter clogging is the common and serious problem associated with drip irrigation. An attempt was made to study drip emitter clogging with the objective of comparing relative emitter discharge, reduction of mean discharge, emission uniformity, and percentage of completely clogged emitters. Experiments were conducted at different concentration of clay viz. 5% and 10% and at different operating pressures viz. 0.6 kg/cm², 0.8 kg/cm² and 1 kg/cm². Emitter performances under different treatments were analysed. Emitter discharge variation with operating pressures for online and inline drip emitters were studied. Clogging was maximum in case of inline drip emitters at higher pressures and at lower pressures few online drip emitters were also clogged. At higher operating pressure, online drip emitters work satisfactorily without clogging. Similarly, mean discharge reduction of inline drip emitters were more at higher operating pressure and at lower pressures discharge of online drip emitters were less. Percentage of completely clogged inline drip emitters was 25%, whereas that of online drip emitters was 5 % only.

Keywords

Online drip emitter, Inline Drip emitter, Drip irrigation

