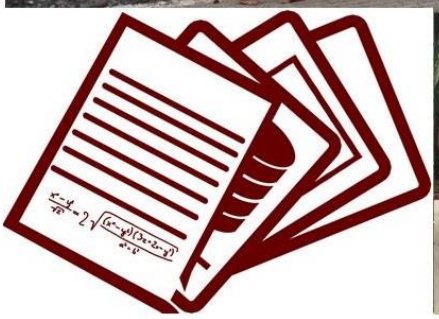
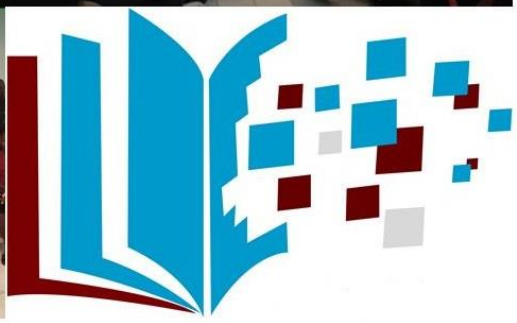
Faculty of Business & Informatics

Business & Informatics Research Symposium 2020 Book of Abstracts





It is in giving through research and knowledge exchange that we share ideas, information and experiences for professional and personal development.

Table of Contents

Message from the Symposium Coordinator and Dean of the Faculty of Business & Informatics

On behalf of the Faculty of Business and Informatics, Divine Word University, I welcome you all to our 2nd Business and Informatics Research Symposium. The theme of this year's symposium is "it is in giving through research and knowledge exchange that we share ideas, information and experiences for professional and personal development".

We published Volume 2 of the Electronic Journal of Informatics with five papers in June 2020. The Journal can be accessed via this link: https://www.dwu.ac.pg/en/index.php/faculty-pages/277-fp-fbi/fbi-dept/fp-fbi-mcs/709-fbi-e-journal. This year we celebrate an achievement of having our 2nd annual symposium. These are great achievements, setting standards and motivations for future research activities and symposiums.

The symposium aims to build and maintain a research culture within the Faculty and University. It provides an avenue for the Faculty staff to present the outcomes of their research activities conducted during the academic year. It provides an opportunity for staff to share ideas, knowledge and experiences with others, both within and outside the University, for professional and personal development.

The symposium enables staff to work together in the spirit of teamwork and collegiality in hosting such an event. It allows staff to discover, develop and realize their gifts and potential, and utilize their knowledge, skills and experiences to contribute to the body of knowledge in their respective fields.

Once again, welcome to the 2nd Business & Informatics Research Symposium 2020; an event to be remembered by all.

Associate Professor Dr Martin Daniel (PhD)
Coordinator, Business & Informatics Research Symposium
Dean, Faculty of Business & Informatics
Divine Word University

Melanesian research framework: A rural tourism perspective

Fiona Pisong N'Drower

This study explores the effectiveness of rural tourism in Papua New Guinea (PNG) and uses an indigenous research tool to explore the value of tourism towards community empowerment. Twelve rural tourism resource owners were invited to participate in the study to share their experiences and aspirations of tourism as an economic activity. They were encouraged to share their thoughts on how tourism could be improved at their level. The study revealed that the communities visited already have in existence a key ingredient that supports tourism. This ingredient is the family and clan system that forms the basic foundation of traditional societies in PNG. In rural PNG, social capital is an important asset that facilitates community survival and livelihood. The value of kinship is deeply rooted in PNG's traditional culture. Hence, the concept of social capital has prompted communities to work together and promote tourism as a community initiative.

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Benefits of mega-events: The Asia Pacific Economic Cooperation meeting in Papua New Guinea

Allan Sumb

Mega-events create a powerful destination image for a host nation. This paper presents the benefits of mega-events such as the Asia Pacific Economic Cooperation in a host country (e.g. PNG). The study employed a method where the data were collected through online searches and analyzed thematically. The study found three major benefits, which contribute to economic development. Firstly, APEC was seen to provide an opportunity for PNG to showcase a positive destination image to the world. Secondly, the infrastructures built for APEC will remain as legacies of mega-events and expected to continually benefit PNG. Thirdly APEC has helped the growth of the tourism and hospitality industry. Thus, the paper provides a better understanding of hosting a mega-event in a developing country.

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Biodata

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Reflections from tutoring undergraduate Tourism and Hospitality Management students in survey research

Vanessa Uiari

Being a tutor in research methods, and supervising undergraduate student research projects in the Faculty of Business and Informatics at Divine Word University is challenging. It is also overwhelming for undergraduate students who complete tasks that even the most adept postgraduate students find daunting. The main purpose of this paper is to highlight the challenges that five (5) tourism and hospitality management students reported about conducting survey research, and outline, using autoethnographic reflections, the pedagogy I applied, and lessons I learned in attempting to guide students through these issues. Over the course of 30 contact weeks, which are divided into two semesters, students undertake studies in Business Research Methods 1 and 2. They are expected to review literature, draft data collection instruments, apply for ethics clearance, collect and analyse data, and write a final research report. Challenges encountered centred around the following key steps in learning the research process: (1) choosing research topics and navigating the available databases for relevant literature; (2) focusing literature reviews on a search for data collection instruments that are valid and reliable; (3); deciding on appropriate sampling strategies; (4) tailoring survey instruments for PNG contexts; (5) conducting a survey in the field; (6) linking research questions and hypotheses to data collected and running appropriate tests using the Statistical Package for the Social Sciences (SPSS), and; (7) reporting results. The tutor's topic-expertise and the extent of the tutor's research experience are key considerations. An implication for teaching, learning and curriculum is that reflexivity in both teaching and learning potentially prepares undergraduates to be what Tribe (2002) calls a 'philosophic practitioners'.

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Biodata

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The role of PNGTPA in APEC and its implications on the tourism industry in Papua New Guinea

Theresia Wome Kau

Government intervention and empowerment process is vital for destination marketing. The role of PNGTPA in APEC had its implications on the tourism industry in PNG. The study focused on how the staging of the 2018 APEC Summit supports tourism growth in PNG. The study aimed to explore further how they see tourism growth flowing from the summit; what does tourism growth mean to ordinary Papua New Guineans, and do the structures of tourism support growth. The qualitative study involved a snowballing technique to identify participants. The results indicate that PNGTPA played a major role in the hosting of the summit. PNGTPA ensured that PNG marketed as a tourism destination to the rest of the world; different tourism stakeholders were prepared and information reached many parts of PNG. The study concluded that the impacts PNGTPA had were positive for PNG as a tourism destination. It is important to sustain the image and maintain the passion and determination in the tourism stakeholders after the summit. The study recommends the continuity of aggressive marketing of the destination with the support of the PNG government.

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Variation of the value of Pi on non-Euclidean surfaces

Peter K. Anderson

Pi, the ratio of circumference to diameter of a circle, is an infinite non-repeating decimal number calculated, so far, to a trillion decimal places. This ratio was considered to be a universal constant until new geometries of curved surfaces were developed in the 19th c. to replace the famous geometry of flat surfaces developed by Euclid (4th c. BC). In these non-Euclidean geometries shortest paths are not straight lines, but great circles for spherical surfaces with positive curvature, and hyperbolae for surfaces with negative curvature. This presentation will show that on spheres, Pi gets smaller as circle circumferences get larger, and the reverse occurs on hyperbolic surfaces. This topic is of general interest, given the worldwide celebration of Pi day on 3/14/xx each year when we try to interest the general population, including students in Madang schools, colleges and universities in mathematics.

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Differentiability in normed spaces: A new approach

Raunu Gebo Sarsoruo

The notions of limit, continuity, linearity and bilinearity are substantial in the study of the general theory of differentiability in normed spaces. These concepts are used to provide precise proofs of differentiability of some functions in normed spaces. Common properties of the derivative of a function at a particular point are identified and expounded. This paper shows a new approach using common abstractive ideas to develop a better understanding of differentiation. Foundational concepts from limits that relate to continuity, then to linearity and bilinearity in the form of definitions, theorems and lemmas including some of their proofs provide a better way of understanding differentiability in calculus. Another significant result explored is the differentiability and continuity of implicit functions in Banach Spaces.

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Important building blocks of pure mathematics teachers and students at undergraduate level in Papua New Guinea

Cyril Sarsoruo

Pure mathematics is the study of the basic concepts and structures that underlie mathematics. It involves the generalization of these concepts and structures. This paper introduces the essential knowledge or prerequisites a mathematics teacher or student must acquire to understand pure mathematical theories. The building blocks of pure mathematics include the notions of logics, set theory, mappings or functions, quantifiers and relations. The paper aims to show the application of these notions in calculus, probability, linear algebra, number theory, abstract algebra and real analysis, which are the main undergraduate mathematical topics.

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A Benford Primer

Rik King
Peter Anderson

This paper aims to excite the curiosity of the reader to achieve a basic level of understanding of the meaning of Benford's law. Benford's law concerns the prevalence of first and subsequent digits which appear in naturally occurring numerical transactions. One possible forensic application is in the detection of fraud in machine-generated sets of data which do not obey this law. In addition to explanation with illustrative examples, some programs constructed in Excel and R are provided.

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Attacks on the discrete logarithm problem

Lakoa Fitina
Raunu Gebo Sarsoruo

The Discrete logarithm problem has remained computationally intractable for decades. The complexity of solving this problem determines the security of several cryptosystems. Several sophisticated and exponential-time algorithms can compute logarithms practically for small finite groups. However, none of them can run in polynomial time given the number of digits in the size of the group. Therefore, we examine several attacks on the discrete logarithm problem and propose a new attack. Then we examine ways of strengthening the current cryptosystems based on the discrete logarithm problem. Finally, we propose a discrete logarithm cryptosystem that may be implemented on a quantum computer system.

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Raspberry Pi 3 B+ model: A platform to conduct Ubuntu server training lessons

Elliot Pitalot

The demand for highly skilled server administrators is fundamental to corporate organizations which operate on enterprise networks within Papua New Guinea. Ubuntu server management is an important component of this knowledge and most professionals within the field of Information and Communication Technology are required to acquire this skill set. With the limited resources available to conduct such training, interested educators and learners should adapt to the changing technology by making good use of possible resources. This paper discusses how the Raspberry Pi B+ model hardware can be used as a normal computing device to facilitate server management training. Other relevant third-party software and hardware specifications which accompany this discussion are also discussed. The general content of this research is tailored to the PNG context. Readers are encouraged to develop themselves professionally by exploring these resources, as they prepare themselves for industrial experience.

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Biodata

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Using Joomla in the Departments of Information Systems and Mathematics & Computing Science at Divine Word University

Merthon Bahude

Many websites are now available on the World Wide Web to serve a variety of purposes. Some of the websites are static while others are dynamic; some are public while others are private. Public websites can be accessed through the Web while private websites can be accessed through private networks. These can be created using content management systems (CMS) such as Joomla, which is a free and open-source CMS for publishing web content. Joomla is built on a model–view–controller web application framework that allows developers to build powerful online applications. Joomla is used in the Departments of Information Systems and Mathematics & Computing Science, Divine Word University. This paper discusses the CMS and Joomla and the processes that can be used to build websites. The paper also discusses how Joomla is used and its benefits in the said departments.

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National online selection system in Papua New Guinea

Martin Daniel

Many countries around the world are using information and communication technologies to improve their educational processes, thereby, attaining a significant reduction in time, cost and other resources, leading to effective and efficient educational service delivery. The PNG Department of Higher Education, Research, Science and Technology (DHERST) in partnership with PCG Academia developed an online system to improve the process of selecting suitable grade twelve school leavers applying to study at higher educational institutions. This paper provides a brief background of PNG higher education and DHERST. It also discusses the manual process of selecting school leavers and its challenges. The paper then discusses the online selection process (national online selection system) and its benefits. Lastly, it provides some suggestions for improvement and optimum use of the online selection system. Email: mdaniel@dwu.ac.pg and mdmartindaniel@gmail.com.

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Program for the symposium

8:30am	Welcome and program outline, Lyall Dale and Martin Muekia, Masters of Ceremony.
8:35am	Opening prayer, Cronicle Nambahin
8:40am	PNG National Anthem & Pledge, Rosemary Paru
8:45-8:55am	Welcome remarks Vanessa Uiari, Research Coordinator, Faculty of Business & Informatics
Tourism and Hospitality	
8:55-9:05am	Melanesian research framework: A rural tourism perspective Fiona Pisong N'Drower
9:05-9:15am	Benefits of mega-events: Asia Pacific Economic Cooperation meeting in Papua New Guinea Allan Sumb
9:15-9:25am	Reflections from tutoring undergraduate Tourism and Hospitality Management students in survey research Vanessa Uiari
9:25-9:35am	The role of PNGTPA in APEC and its implications on the tourism industry in Papua New Guinea Theresia Kau
9:35-9:45am	Questions and comments
9:45-10am	Keynote speaker Associate Professor Dr Jose Kurian, Vice President Research & Higher Degrees, Divine Word University.
10:00-10:30am	Break
Mathematics	
10:30-10:40am	Variation of the value of Pi on non-Euclidean surfaces Peter K. Anderson
10:40-10:50am	Differentiability in normed spaces: A new approach Raunu Gebo Sarsoruo
10:50-11:00am	Important building blocks of pure mathematics teachers and students at undergraduate level in Papua New Guinea Cyril Sarsoruo
11:00-11:10am	A Benford Primer Peter K. Anderson
11:10-11:20am	Attacks on the discrete logarithm problem Raunu Gebo
11:20-11:30am	Questions and comments
Technology	
11:30-11:40am	Raspberry Pi 3 B+ model: A platform to conduct Ubuntu server training lessons Elliot Pitalot
11:40-11:50am	Using Joomla in the Departments of Information Systems and Mathematics & Computing Science at the Divine Word University Merthon Bahude
11:50-12noon	National online selection system in Papua New Guinea Martin Daniel
12-12:10pm	Questions and comments
Closing remarks	
12 noon – 12:10pm	Launching of Volume 3 of the Electronic Journal of Informatics Associate Professor Dr Martin Daniel (PhD), Chief Editor and Coordinator of the Journal
12:10-12:20pm	Closing remarks Associate Professor Dr Martin Daniel (PhD), Symposium Coordinator and Dean of the Faculty of Business & Informatics